Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

95 Total Hospitals Reporting

Level I and II:	10 facilities	45.7% of data
Level III:	9 facilities	12.3% of data
(Non-Trauma) Hospitals:	76 facilities	41.9% of data

For Quarter 1 2016, which spanned from January 1, 2016 to March 31, 2016, there were 8,077 incidents reported to the Indiana Trauma Registry at the Indiana State Department of Health. There were 95 hospitals that reported data, of which 10 were level I or II trauma centers, 9 were level III trauma centers and 76 were non-trauma centers. There were 6 hospitals that either started to report again or were new to reporting during this quarter compared to the previous quarter, while 5 hospitals dropped off from reporting. A map of the state with the reporting hospitals can be found on page 17. Trauma centers represented 58% of the data. There were 2,897 incidents reported for January, 2,466 reported for February, and 2,714 incidents reported for March.

The content of this report has changed due to suggestions and additions requested by the Indiana State Trauma Care Committee at the June 17, 2016 meeting. Explanations of the changes requested and adapted from the ISTCC meeting can be found on page 18.

Some general reminders include that the blue columns represent an Indiana average, red columns represent level I and II trauma centers, green columns represent level III trauma centers and orange non-trauma centers. If a single percent is listed above a group of bars, the percent listed represents the average for Indiana. If a number is listed above a group of bars, it represents the count for Indiana. The category 'All Transfers' denotes the patient group where ED Disposition = Transferred to Another Hospital. **The category 'Linked Transfers' represents the patient group for whom the initial hospital and final hospital information could be linked.**

Definitions:
Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.
External Cause of Injury: ICD-10-CM codes that are used to describe the mechanism or external factor that caused the injury event.
Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.
Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum Abbreviated Injury Scale (AIS) values to account for multiple injuries in the six body regions.

Formulas:

Acronyms:
ED: Emergency Department   MVC: Motor Vehicle Collision

ICU: Intensive Care Unit   OR: Operating Room
ISS: Injury Severity Score   Ps: Probability of Survival
LOS: Length of Stay   Level I, II and III: Verified and In
NTC: Non-trauma Center   Process Trauma Centers
CAHs: Critical Access Hospital

Calculations:
$Ps = 1/(1+e^{-b})$ where $b=b_o+b1(RTS) + b2(ISS) + b3(Age\ Index)$
Total GCS = Verbal GCS + Motor GCS + Eye GCS
RTS = 0.94*GCS+0.73*SBP+0.29*RR
$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$

Indiana State
Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry
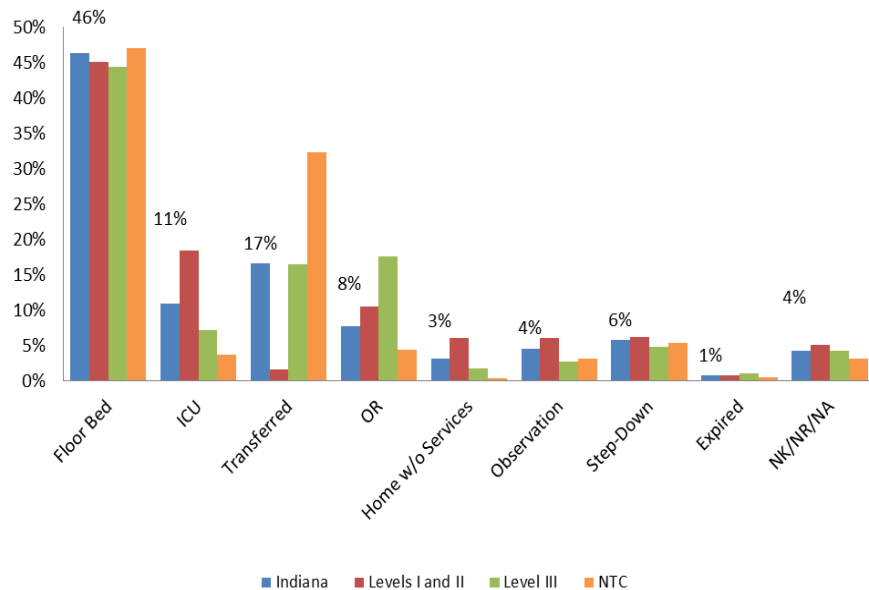
Statewide Quarter 1 Data Report
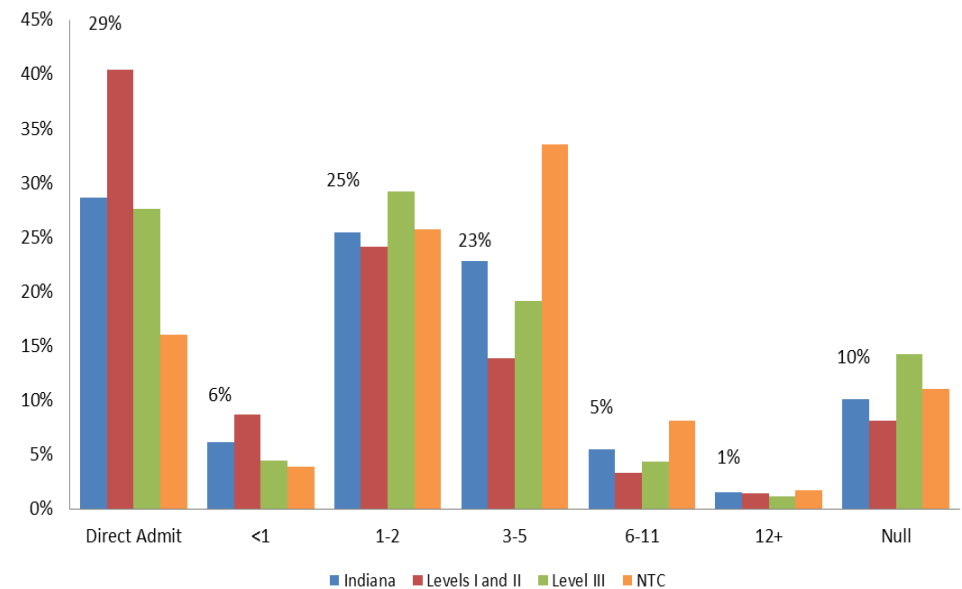**January 1, 2016—March 31, 2016**
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ED Disposition by Percentage

ED Length of Stay (Hours)

Indiana Trauma Registry

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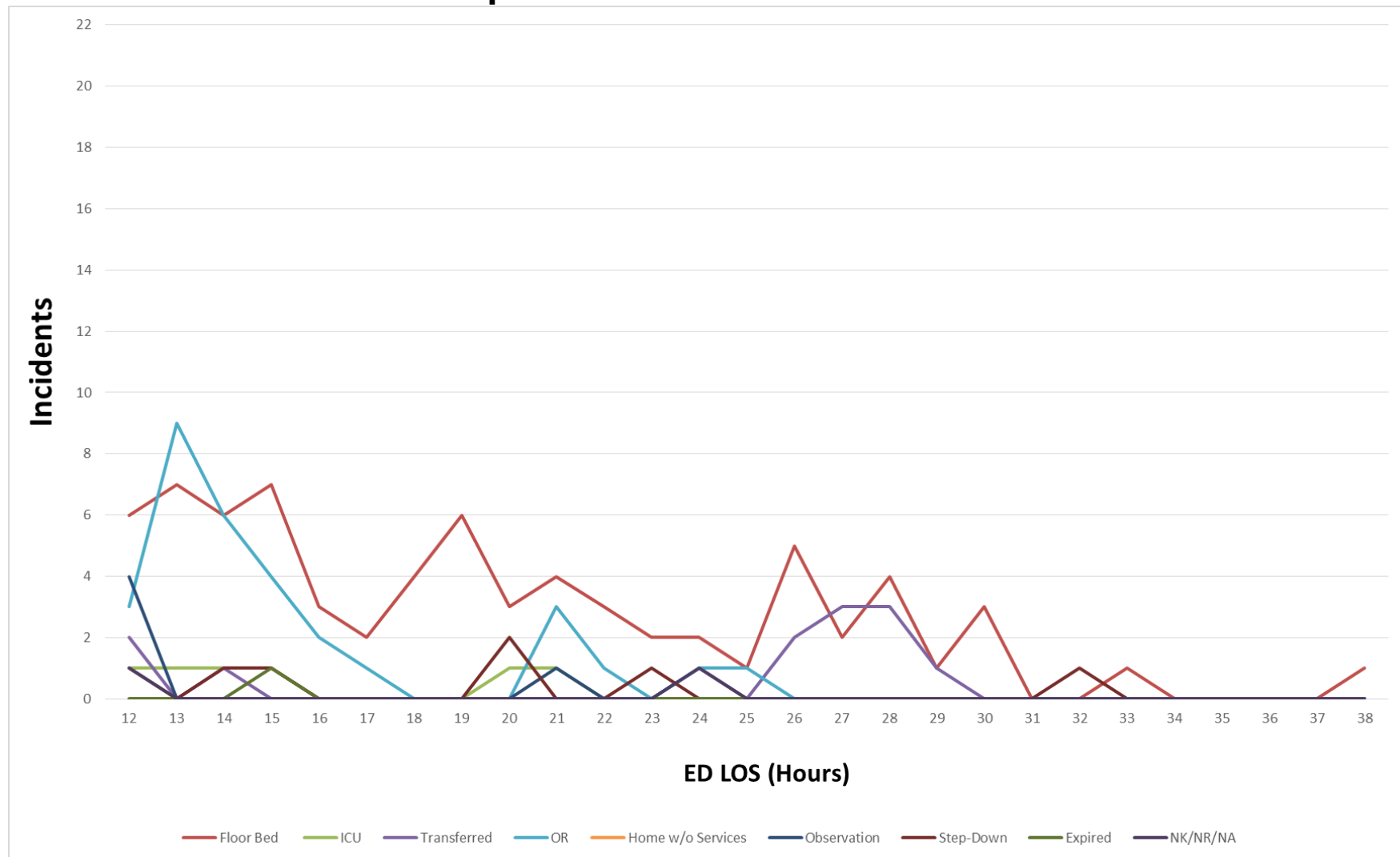January 1, 2016—March 31, 2016
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ED Disposition for ED LOS >12 Hours

Legend: Floor Bed — ICU — Transferred — OR — Home w/o Services — Observation — Step-Down — Expired — NK/NR/NA

X-axis: ED LOS (Hours)
Y-axis: Incidents

N=121   *One cases expired at 15 hours

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ED LOS > 12 Hours, N=121

Facilities	52 Level I and II 11 Level III 58 Non-trauma Centers	**Region**	42 North; 41 Central; 18 South; 20 Unknown
Average Distance from Scene to Facility	21.2 Miles	**ISS**	67 (1-8 cat); 40 (9-15 cat); 4 (16-24); 2 (25-44); 1 (45-74); 7 (No ISS)
Transport Type	77 Ambulance; 4 Helicopter, 31 Private Vehicle/Walk-In; 89Unknown	**GCS Motor**	2 (1 cat); 2 (4 cat); 1 (5 cat); 88 (6 cat); 28 (unknown)
Cause of Injury	12 Transport; 53 Falls; 8 Inanimate Mech. Forces, 1 Animate Mech. Forces; 47 Not Identified	**RTS—Systolic**	4 (2-4)
Signs of Life	94 Yes; 27 Not Applicable	**RTS—Resp. Scale**	3 (3-4)
Age	57.5 Years (0.3-98 Years)	**Resp. Assistance**	2 Yes; 83 No; 36 Unknown
Gender	61 Female; 60 Male	**ED LOS**	19.5 (12-38)
Interfacility Transfer	20 Yes; 101No	**ED Disposition**	2 Cath lab; 1 Died; 70 Floor; 6 ICU; 3 Observation; 30 OR; 6 Step-down; 13 Transferred

-Region was created from injury zip code. Missing = no injury zip or injury zip from out of state.

-Numbers represent counts per category or mean with minimum and maximum in parentheses.

-No signs of life is defined as having none of the following: organized EKG activity, papillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress (2015 Trauma Registry Data Dictionary, page 185).

Indiana Trauma Registry

Statewide Quarter 1 Data Report
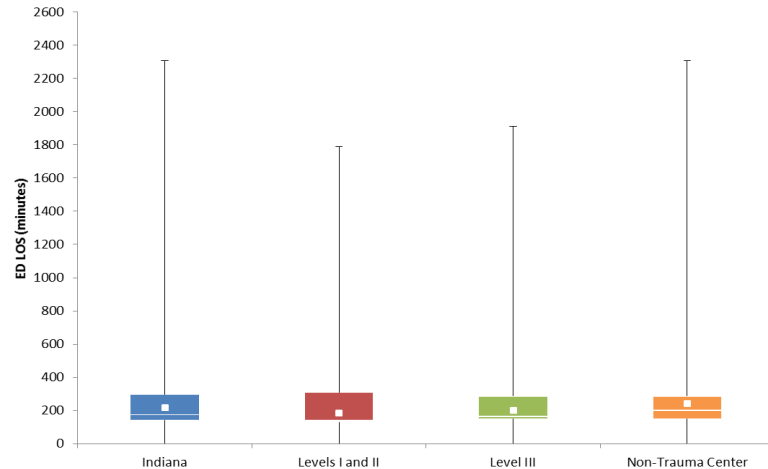**January 1, 2016—March 31, 2016**

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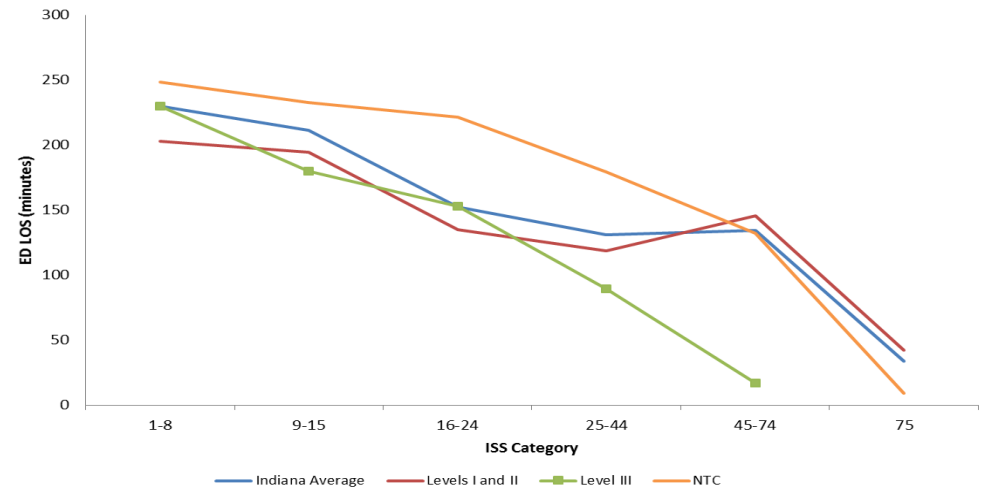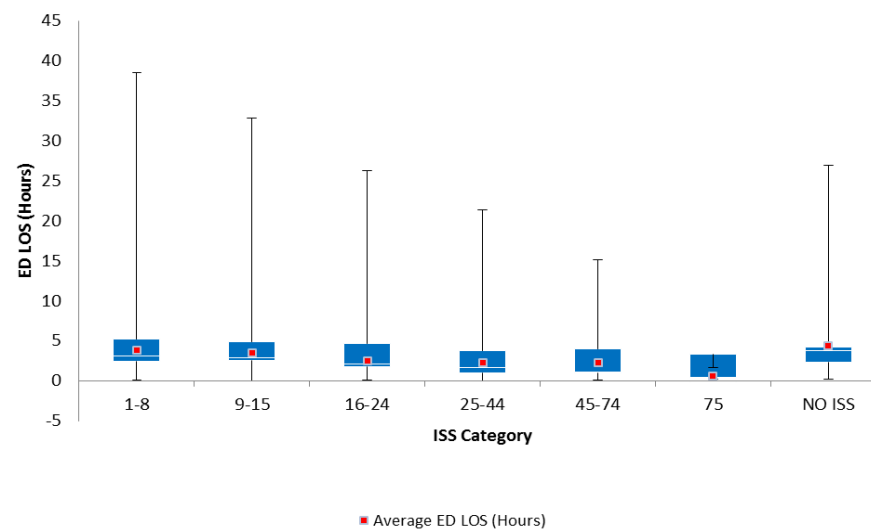|		
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ED LOS (Minutes) - All Patients

A table with all the values for ED LOS is found on page 49.

ED LOS (Minutes) by ISS

Note for EDLOS by ISS, there were 4 cases with ISS of 75; one was at a non-trauma center.

ED LOS (Minutes) by ISS

A table with values for ED LOS by ISS may be found on page 50

Indiana Trauma Registry

Statewide Quarter 1 Data Report
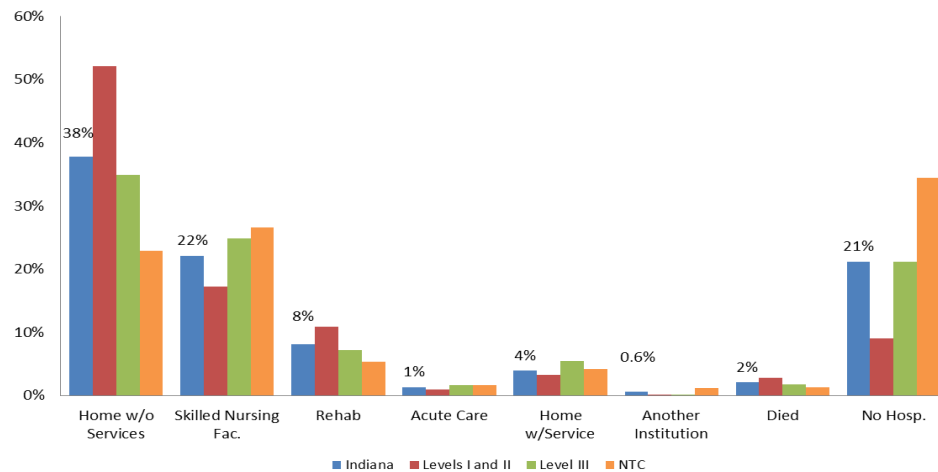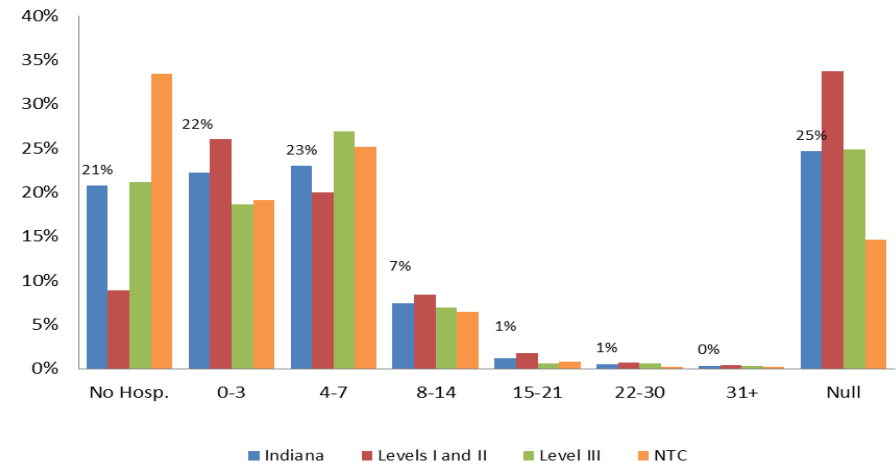**January 1, 2016—March 31, 2016**
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Hospital Disposition


Hospital Length of Stay (days)

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For Quarter 1 2016, of the 8,077 incidents reported to the Indiana Trauma Registry, 1,336 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 702 cases were probabilistically matched. The linked cases make up 25% of the Q1 2015 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,336 Incidents
Matched: 702 Incidents
Final Facility: 1,494 Incidents
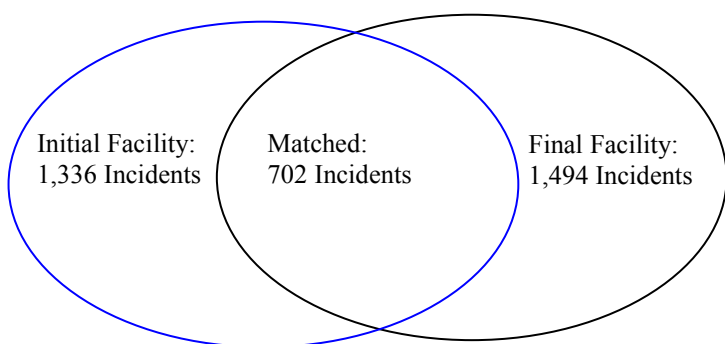
The initial facility in which transfers come from may be considered Critical Access Hospitals (CAHs). All Indiana CAHs are considered Rural, and must meet additional requirements to have a CAH designation, such as having no more than 25 inpatient beds and being located in a rural area. Facilities that are highlighted indicate that these facilities reported data for Quarter 4, 2015.

Within this transfer data section, the purple columns represent the transfer cases and the single percentages represent the percent for the transfer cases. For two demographic variables, patient age groupings and gender, the Indiana average is included to provide more insight to this transfer population.

Indiana Critical Access Hospitals (CAHs)

|	
Adams Memorial Hospital	Perry County Memorial Hospital
Cameron Memorial Community Hospital Inc	Pulaski Memorial Hospital
Community Hospital of Bremen Inc	Putnam County Hospital
Decatur County Memorial Hospital	Rush Memorial Hospital
Dukes Memorial Hospital	Scott Memorial Hospital
Gibson General Hospital	St Vincent Frankfort Hospital Inc
Greene County General Hospital	St Vincent Jennings Hospital Inc
Harrison County Hospital	St Vincent Mercy Hospital
IU Health Bedford Hospital	St Vincent Randolph Hospital Inc
IU Health Blackford Hospital	St Vincent Salem Hospital Inc
IU Health Paoli Hospital	St. Mary's Warrick Hospital Inc
IU Health Tipton Hospital	St. Vincent Clay Hospital Inc
IU Health White Memorial Hospital	St. Vincent Dunn Hospital Inc
Jasper County Hospital	St. Vincent Williamsport Hospital, Inc.
Jay County Hospital	Sullivan County Community Hospital
Margaret Mary Community Hospital Inc	Union Hospital Clinton
Parkview LaGrange Hospital	Woodlawn Hospital
Parkview Wabash Hospital	

Rural Hospitals

|	
Columbus Regional Hospital	Kosciusko Community Hospital
Daviess Community Hospital	Major Hospital
Fayette Regional Health System	Marion General Hospital
Franciscan St Anthony Health - Michigan City	Memorial Hospital
Franciscan St Elizabeth Health - Crawfordsville	Memorial Hospital and Health Care Center
Good Samaritan Hospital	Parkview Noble Hospital
Henry County Memorial Hospital	Reid Hospital & Health Care Services
Indiana University Health La Porte Hospital	Saint Joseph RMC - Plymouth
Indiana University Health Starke Hospital	Schneck Medical Center
King's Daughters' Health	

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Historical Links

Initial Facility: 1,627 Incidents — Matched: 724 Incidents — Final Facility: 1,601 Incidents
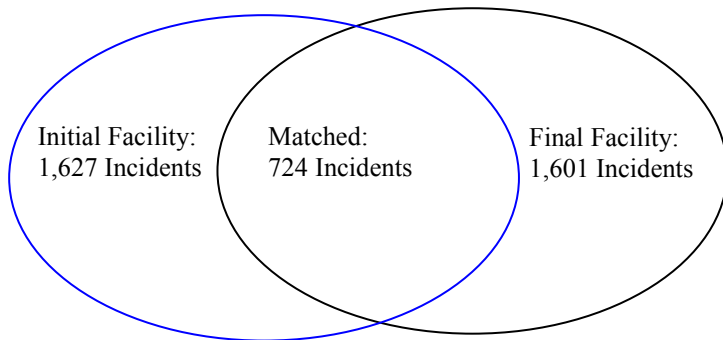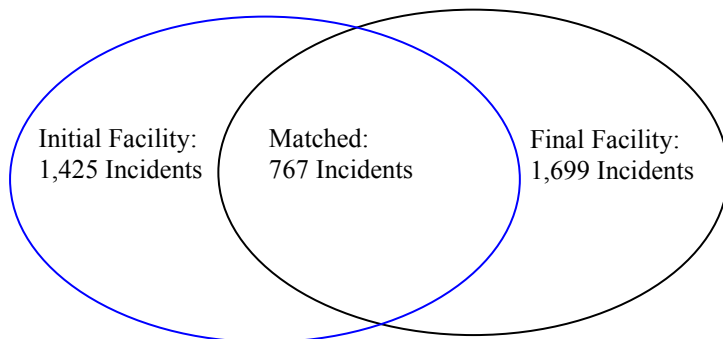
For Quarter 2, 2015, of the 8,605 incidents reported to the Indiana Trauma Registry, 1,627 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 724 cases were probabilistically matched. The linked cases make up 22% of the Q2 2015 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,824 Incidents — Matched: 819 Incidents — Final Facility: 1,865 Incidents
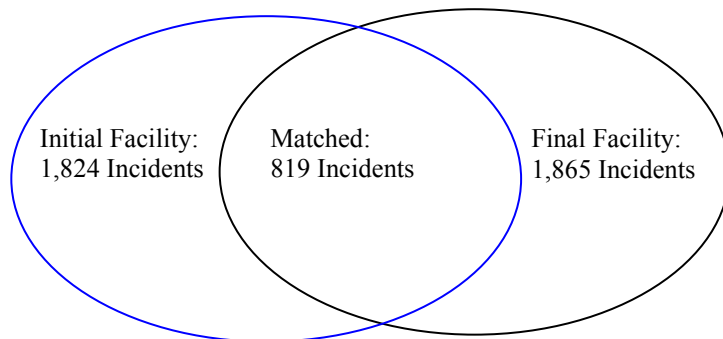
For Quarter 3, 2015, of the 9,555 incidents reported to the Indiana Trauma Registry, 1,824 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 819 cases were probabilistically matched. The linked cases make up 22% of the Q4 2015 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,425 Incidents — Matched: 767 Incidents — Final Facility: 1,699 Incidents

For Quarter 4, 2015, of the 8,728 incidents reported to the Indiana Trauma Registry, 1,425 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 767 cases were probabilistically matched. The linked cases make up 25% of the Q4 2015 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

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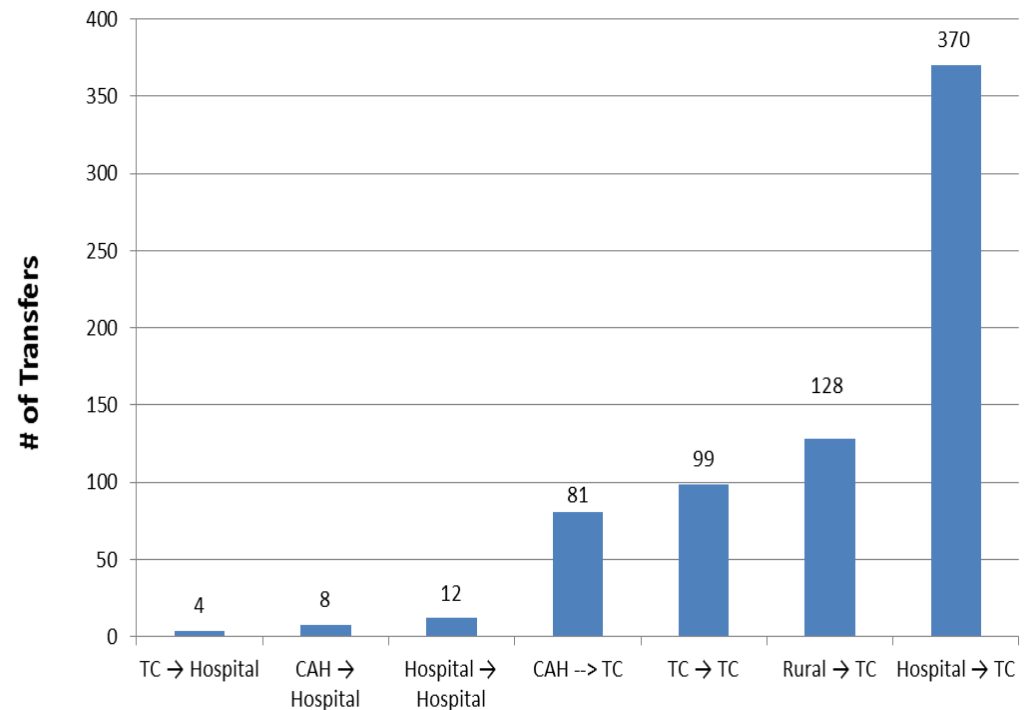|		
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Facility to Facility Transfers

For Transfer Patients:		
Initial Hospital Type	**Final Hospital Type**	**Incident Counts**
Trauma Center	Hospital	4
Critical Access Hospital	Hospital	8
Hospital	Hospital	12
Critical Access Hospital	Trauma Center	81
Trauma Center	Trauma Center	99
Rural Hospital	Trauma Center	128
Hospital	Trauma Center	370

Facility Transfer Type

Rural = Rural Hospital; TC = ACS Verified or In Process Trauma Center;

CAH = Critical Access Hospital; Hospital = does not fall into above categories

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For Linked Transfer Patients:

For Transfer Patients:				
	All Transfer Patients	Critical*	Physiological Critical**	ISS Critical***
Number of Patients	702	325	298	57
EMS Notified to Scene	8.1 minutes	8.2 minutes	7.9 minutes	10.4 minutes
EMS Scene Arrival to Departure	18 minutes	17.7 minutes	17.3 minutes	16.5 minutes
EMS Scene Departure to Initial Hospital ED Arrival	18.8 minutes	17.6 minutes	16.8 minutes	21.7 minutes
Initial Hospital ED Arrival to Departure	3 hours 9 minutes	3 hours 5.9 minutes	3 hours 9.6 minutes	2 hours 9.7 minutes
Initial Hospital ED Departure to Final Hospital ED Arrival	1 hour 7.3 minutes	1 hour 6.9 minutes	1 hour 9.5 minutes	1 hour 17.2 minutes
TOTAL TIME	5 hours 1.2 minutes	4 hours 58.3 minutes	5 hours 1.1 minutes	4 hours 15.5 minutes

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

***ISS Critical Transfer patient is defined as having an ISS > 15 at the initial hospital

Indiana Trauma Registry

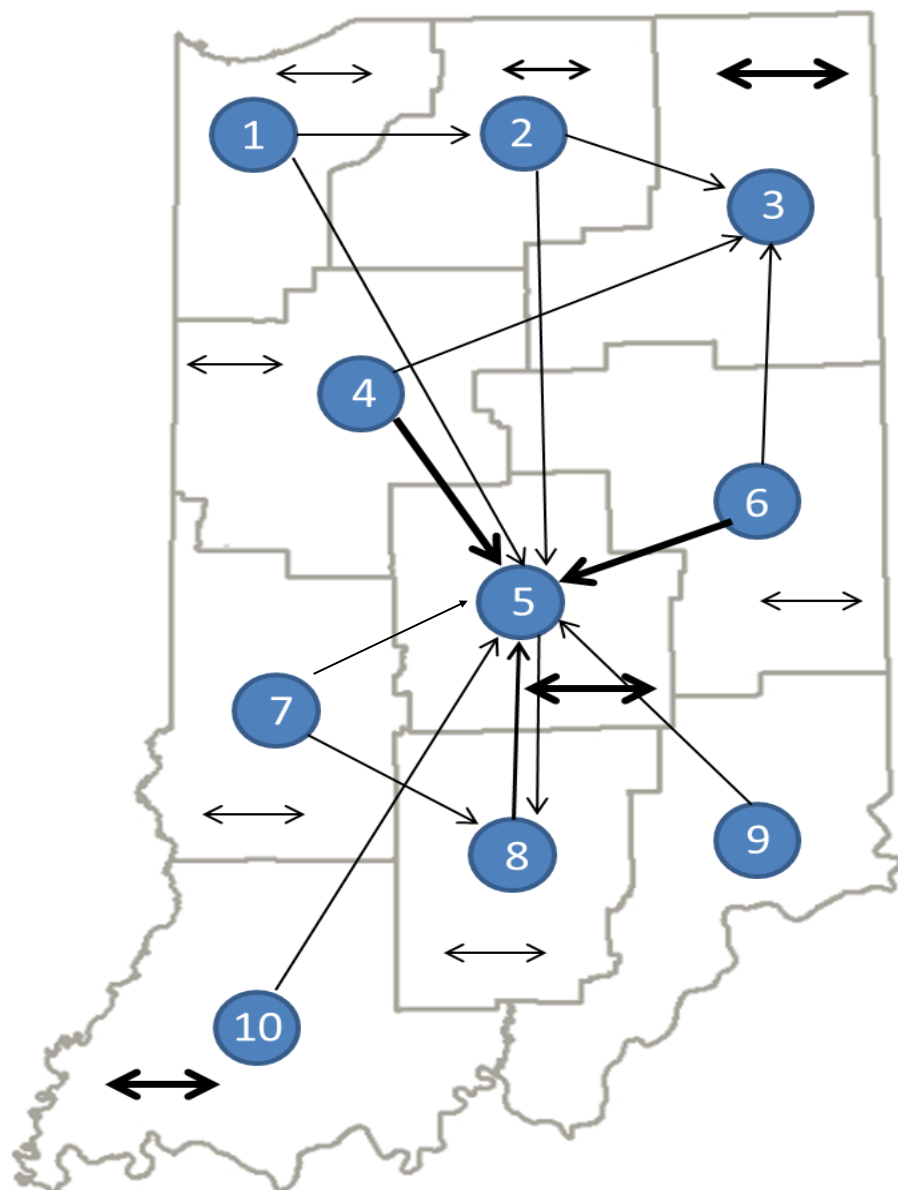## Statewide Quarter 1 Data Report
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For Transfer Patients:		
Public Health Preparedness District Initial Hospital	**Public Health Preparedness District Final Hospital**	**Incident Counts**
1	1	13
1	2	22
1	4	5
1	5	16
2	2	20
2	5	3
3	3	144
3	5	1
4	3	7
4	4	13
4	5	42
5	5	135
6	5	81
6	6	8
7	5	29
7	7	4
7	8	1
8	5	41
8	8	2
8	10	1
9	5	7
9	9	1
10	5	6
10	10	95

*The thickness of the line indicates the frequency of transfers out of or within the public health preparedness district The circles represent transfers from a specific PHPD, not of a specific hospital or county.

Indiana Trauma Registry

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For Transfer Patients:

	All Transfer Patients	Critical*	Physiological Critical**	ISS Critical***
Number of Patients	702	325	298	57
Total Time	5 hours 1.2 minutes	4 hours 58.3 minutes	5 hours 1.1 minutes	4 hours 15.5 minutes
Total Mileage	48.6	53.1	53.0	54.4
Injury Scene to Initial Hospital Mileage***	7.6	7.6	7.7	7.6
Initial Facility to Final Facility Mileage	41	45.5	45.4	46.9

Estimated Average Distance (miles) by Region (region of final hospital):

Region	Injury Scene to Initial Facility Mileage†	Initial Facility to Final Facility Mileage	Total Mileage	Drive Count	Air Count
Indiana Average	7.6	41	48.6	617	85
North Region	5.3	28.5	33.7	198	13
Central Region	8.1	49.3	57.3	330	61
South Region	10.6	35.1	45.7	89	11

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

*** ISS Critical Transfer patient is defined as ISS > 15 at the initial hospital.

†Injury Scene to Initial Facility Mileage location estimated by zip code centroid

Statistics for Estimated Average Distance by Region calculated by Public Health Geographics, Epidemiology Resource Center, ISDH

Indiana Trauma Registry
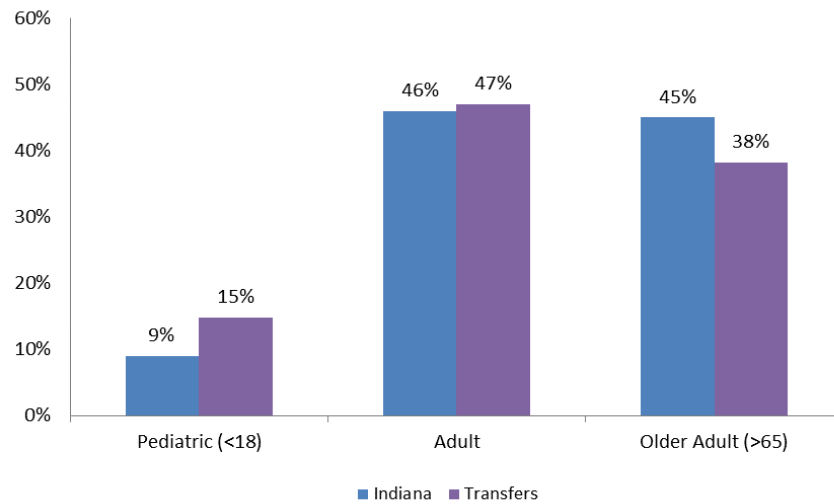
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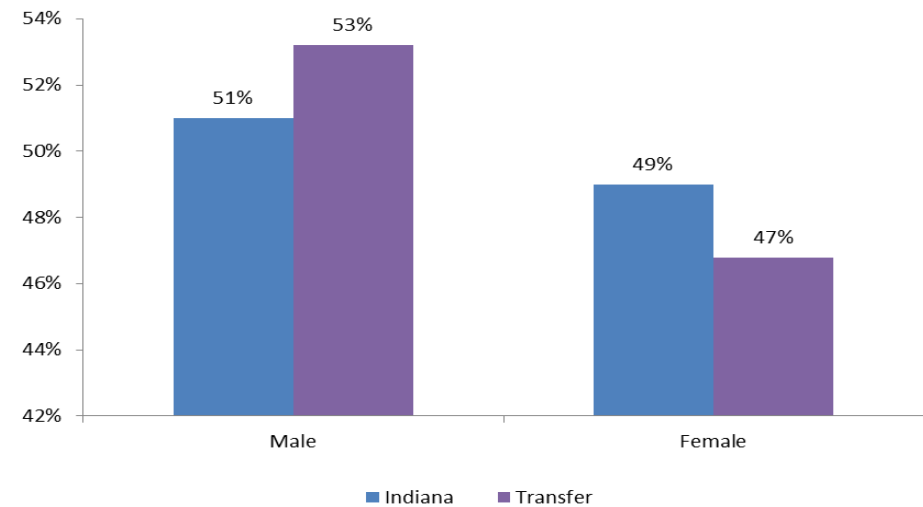**January 1, 2016—March 31, 2016**
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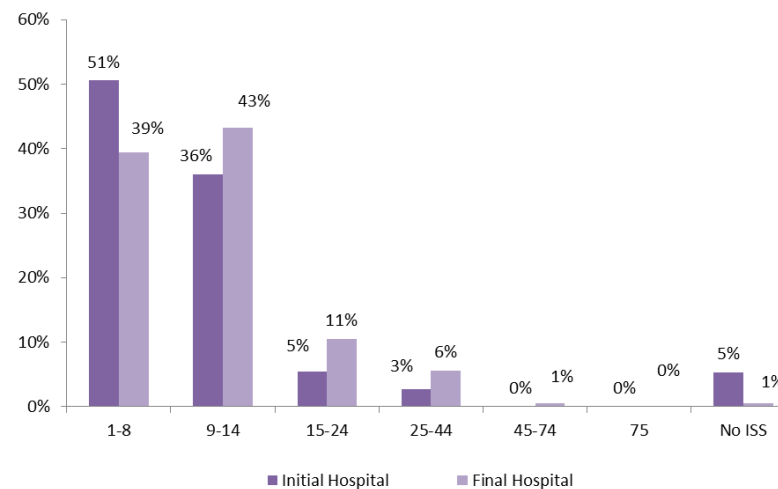|		
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Patient Age Groupings
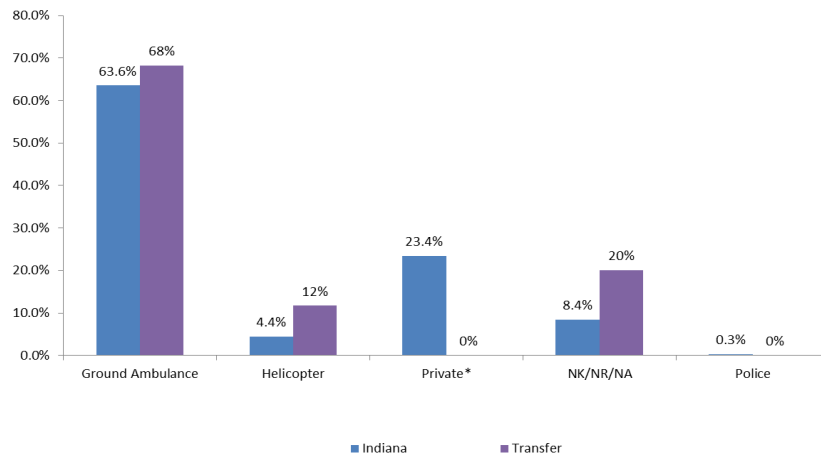

Patient Gender

Injury Severity Score (ISS)

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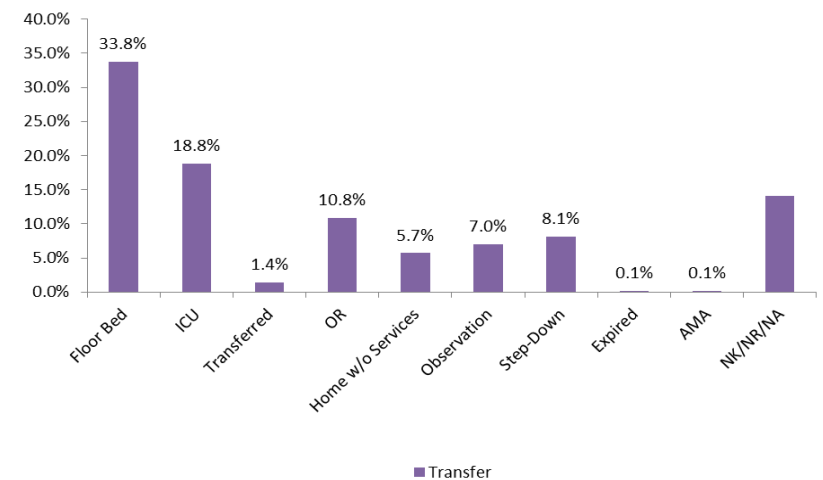|		
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Transport Mode– Final Hospital
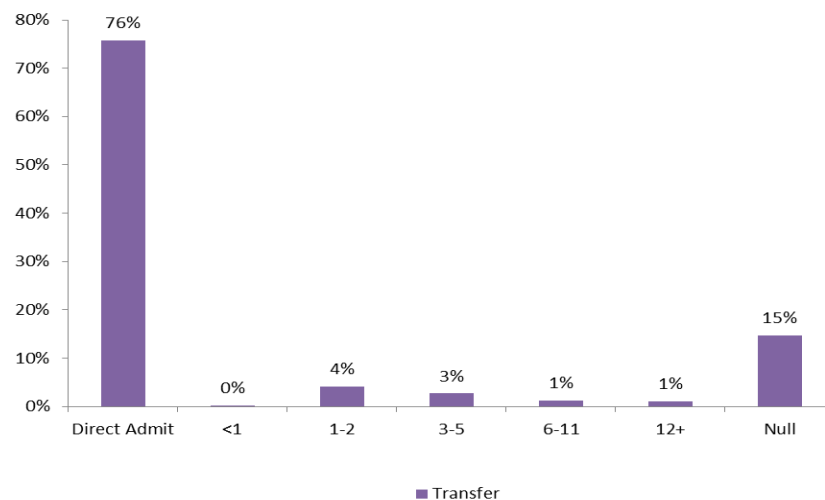

<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in
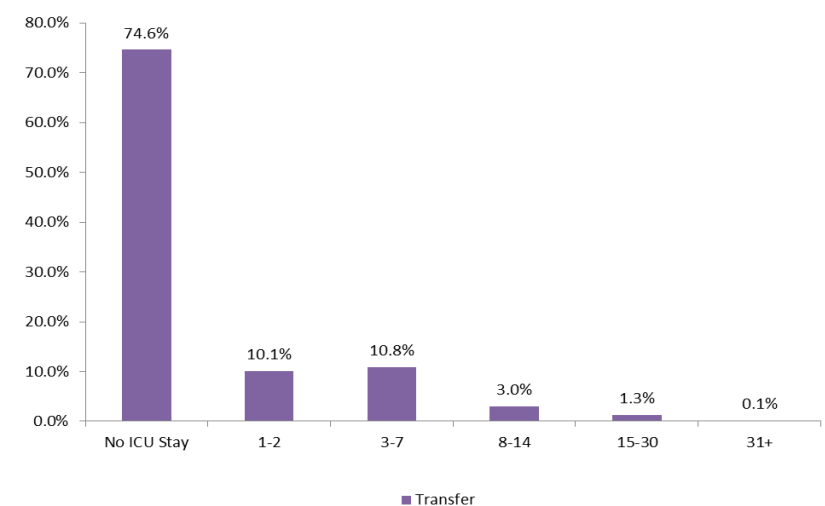
ED Disposition by Percentage- Final Hospital

ED Length of Stay (hours)- Final Hospital

ICU Length of Stay (days)- Final Hospital

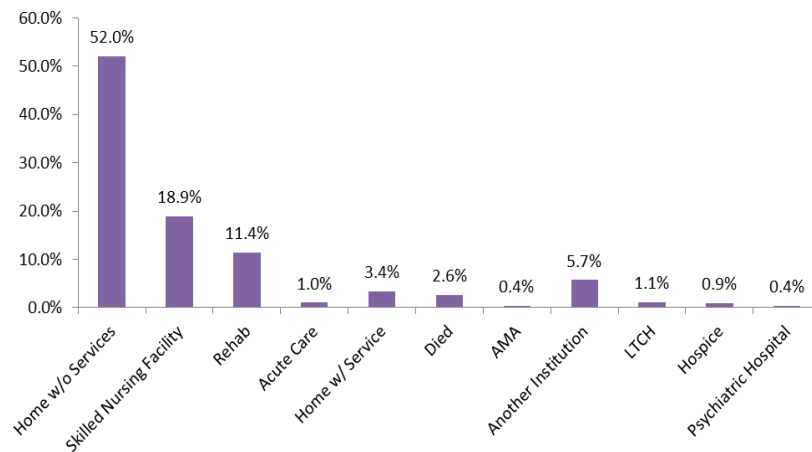# Indiana Trauma Registry

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Discharge Disposition– Final Hospital

Helicopter Transfers by ISS– Final Hospital
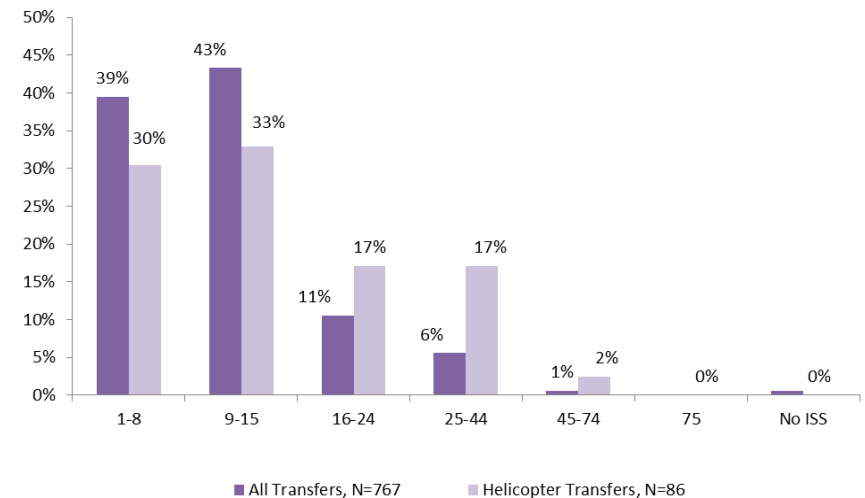
Transfer Delay Indicated- Initial Hospital

Initial Facility Transfer Delay Reason

15

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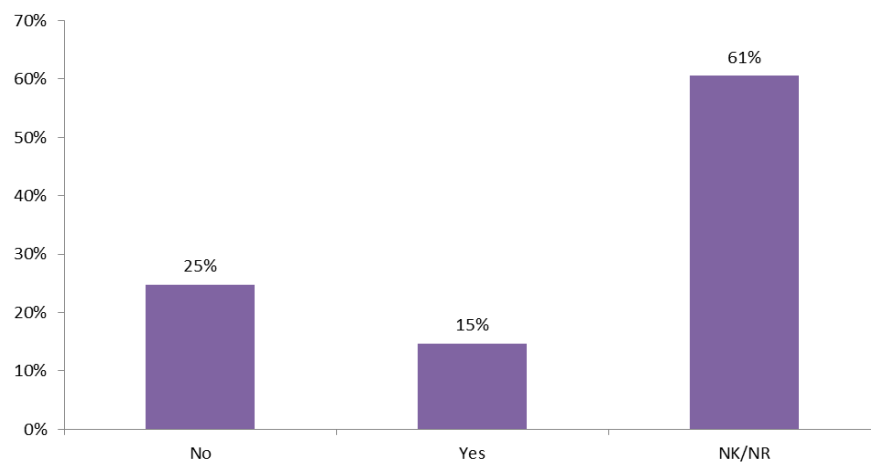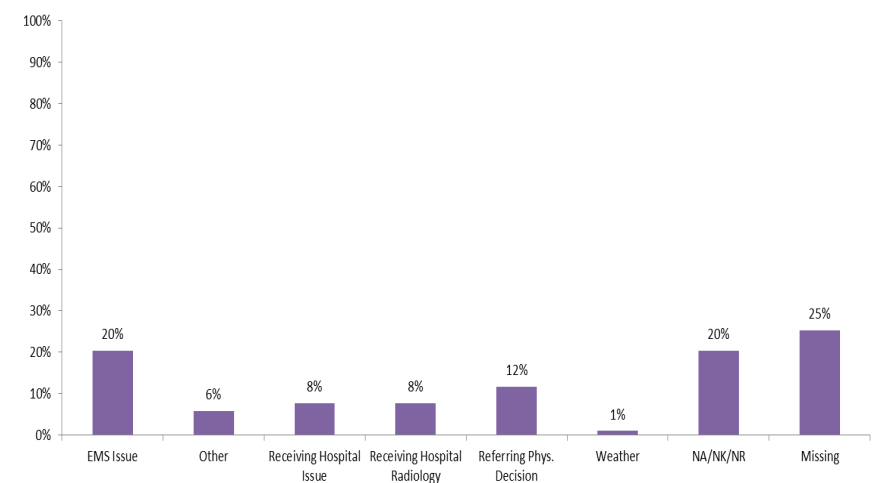
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Indiana State Department of Health
Indiana Trauma Registry
Hospitals Not Reporting Trauma Data to the Indiana Trauma Registry

Not reporting
1/01/2016 to 3/31/2016

Indiana State
Department of Health

Map Author: ISDH Trauma & Injury Prevention, ISDH PHG - October, 2016
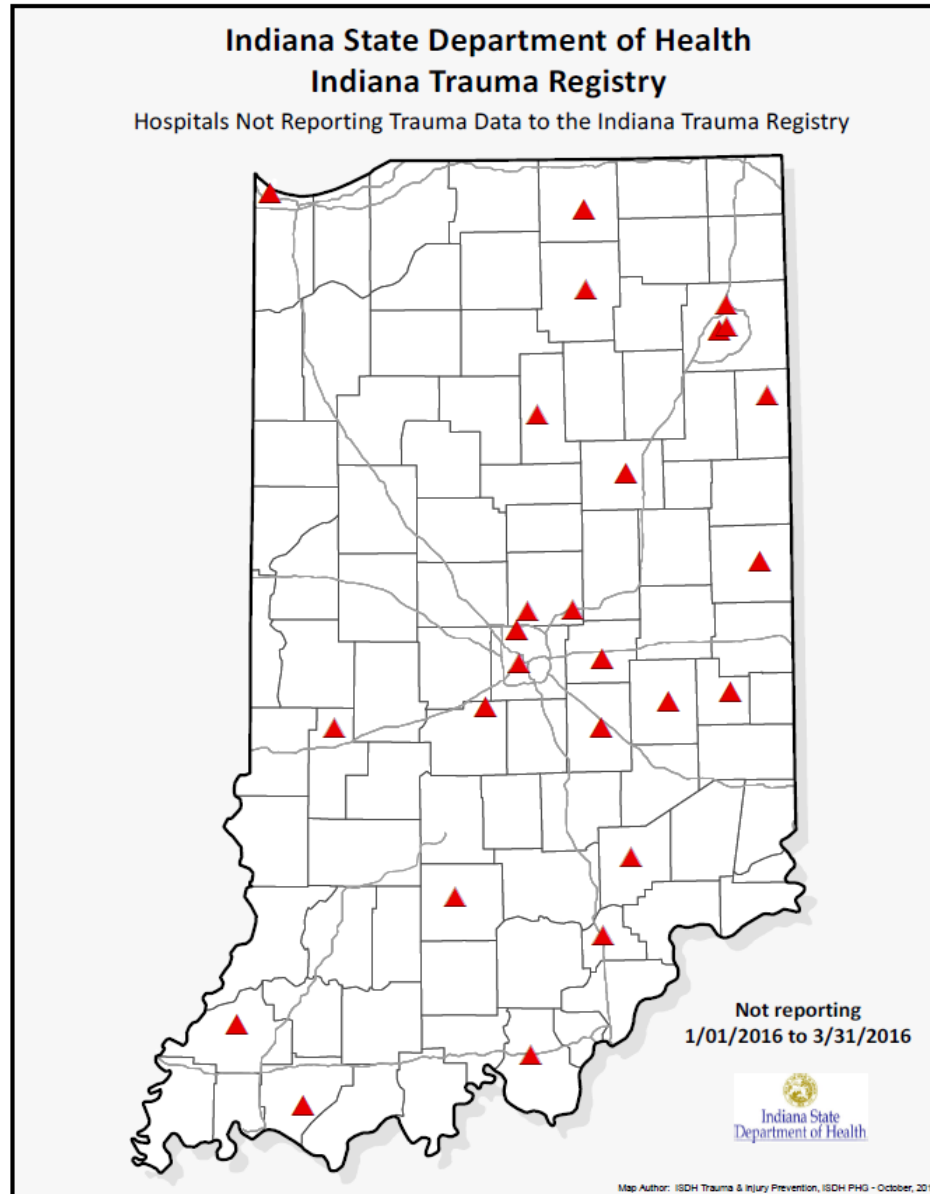
Indiana State Department of Health
Indiana Trauma Registry

Hospitals Reporting Trauma Data Quarter 1
January 1, 2016 - March 31, 2016

I II Level I and II Trauma Centers

Deaconess Hospital
Eskenazi Health
IU Health - Methodist Hospital
Lutheran Hospital of Indiana
Memorial Hospital of South Bend
Parkview Regional Medical Center
Riley Hospital for Children at IU Health
St Mary's Medical Center of Evansville
St Vincent Indianapolis Hospital & Health Services
Terre Haute Regional Hospital

III Level III Trauma Centers

Community Hospital of Anderson & Madison Co.
Franciscan Health - Crown Point
Franciscan Health - Lafayette East
Good Samaritan Hospital
IU Health - Arnett Hospital
IU Health - Ball Memorial Hospital
Methodist Hospitals - Northlake Campus
Reid Hospital & Health Care Services

▲ Non-Trauma Hospitals

77 Non-Trauma Hospitals

Hospital categories include Verified and "In the Process"
Trauma Centers as of December 31, 2015.
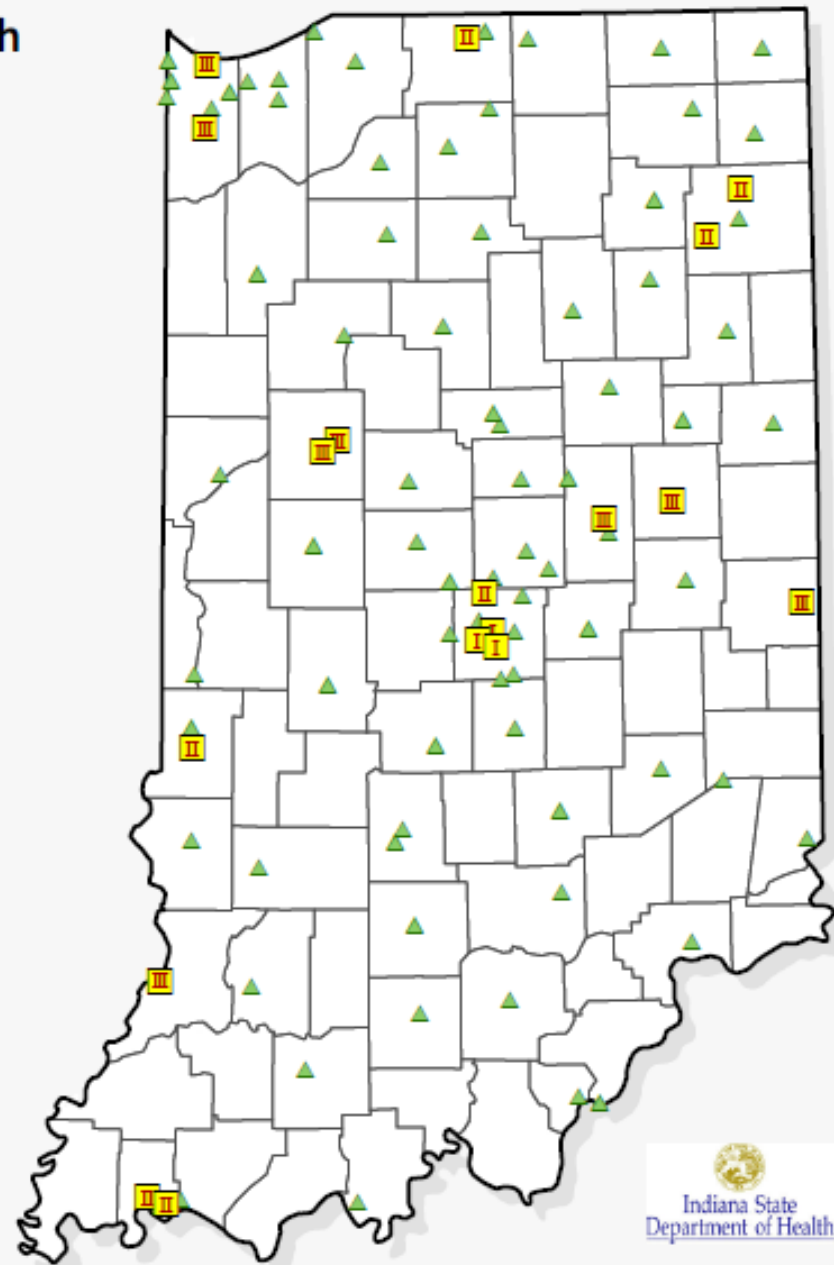
Map Author: ISDH Trauma & Injury Prevention, ISDH PHG - October, 2016

Indiana State
Department of Health

17

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Requests and Changes to the Report from Trauma Care Committee members at the June 2016 ISTCC meeting:

General Report:

-Pages 43-48 have caterpillar plots with the ED LOS for critical transfer patients.

-Signs of Life: The two field values for this variable are: 1) Arrived with no signs of life, 2) Arrived with signs of life. A patient with no signs of life is defined as having none of the following: organized EKG activity, pupillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress.

Example Bar and Whisker Plot:

-Bar and whisker plots were requested at the November 2013 ISTCC meeting in order to show more than just an average ED LOS and ED LOS by ISS. The bar and whisker plots represent the four quartiles of data, as illustrated on the example graph to the right. The blue boxes each contain 25% of the values and the error bars each represent where 25% of the values fell. The median is represented in the middle of the two blue boxes with the white line. The red dot in the center indicates the average for that category. The cap on the error bars indicates the minimum and maximum of each category and all the values fall within the two caps.

-For the ED LOS bar and whisker plots to the right, the average is represented by the white dot and the color boxes reflect the hospital type. The ED LOS by ISS plots on the next page follow the same layout and the red dots indicate the average for each of the ISS categories.
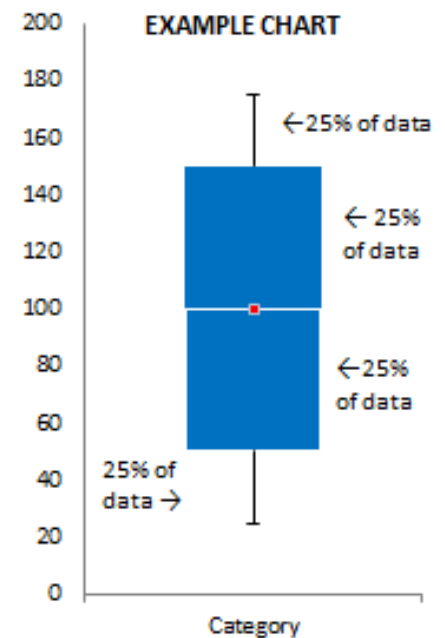
EXAMPLE CHART

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

95 Total Hospitals Reporting

Level I and II:	10 facilities	45.7% of data
Level III:	9 facilities	12.3% of data
(Non-Trauma) Hospitals:	76 facilities	41.9% of data

Supplemental Report

The Supplemental Report (pages 19-52) contains demographic information, data that stays nearly constant from quarter to quarter, and reference tables and maps.

Definitions:

Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.

External Cause of Injury: ICD-10-CM codes that are used to describe the mechanism or external factor that caused the injury event.

Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.

Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum Abbreviated Injury Scale (AIS) values to account for multiple injuries in the six body regions.

Signs of Life: The two field values for this variable are: 1) Arrived with no signs of life, 2) Arrived with signs of life. A patient with no signs of life is defined as having none of the following: organized EKG activity, pupillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress.

Acronyms:

E-code: External Cause of Injury	MVC: Motor Vehicle Collision
ED: Emergency Department	OR: Operating Room
ICU: Intensive Care Unit	Ps: Probability of Survival
ISS: Injury Severity Score	CAHs: Critical Access Hospital
LOS: Length of Stay	

Calculations:

$Ps = 1/(1+e^{-b})$ where $b=b_o+b1(RTS) + b2(ISS) + b3(Age\ Index)$

Total GCS = Verbal GCS + Motor GCS + Eye GCS

RTS = 0.94*GCS+0.73*SBP+0.29*RR

$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$

Indiana State
Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry

Statewide Quarter 1 Data Report
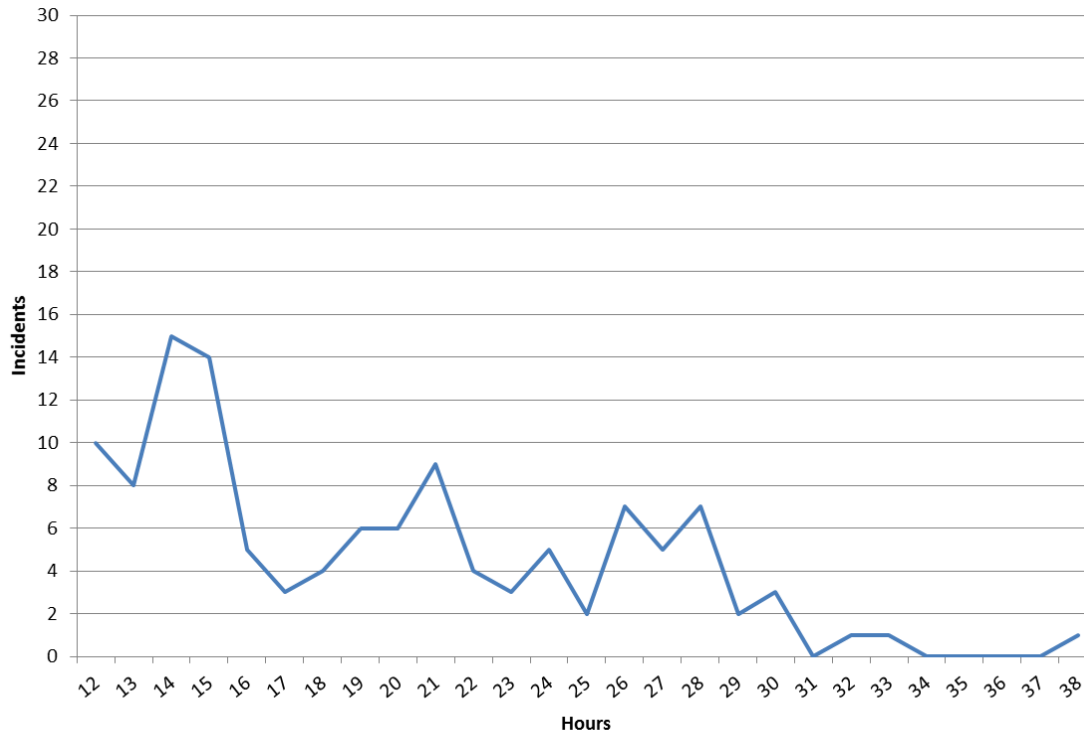**January 1, 2016—March 31, 2016**
8,077 Incidents

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ED LOS ≥ 12 Hours

N=121

ED Length of Stay ≥ 12 Hours			
Hour	Count	**Hour**	Count
12th	10	**26th**	7
13th	8	**27th**	5
14th	15	**28th**	7
15th	14	**29th**	2
16th	5	**30th**	3
17th	3	**31st**	0
18th	4	**32nd**	1
19th	6	**33rd**	1
20th	6	**34th**	0
21st	9	**34th**	0
22nd	4	**35th**	0
23rd	3	**36th**	0
24th	5	**37th**	0
25th	2	**38th**	1

Statewide Quarter 1 Data Report
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Average ED LOS (Minutes)

Legend: All Minutes (blue), Transfer Minutes (orange), Critical Minutes (gray)

Districts 1–10

*Black line represents the 120 minutes ACS goal
**Blue line represents the state average

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
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95 Total Hospitals Reporting

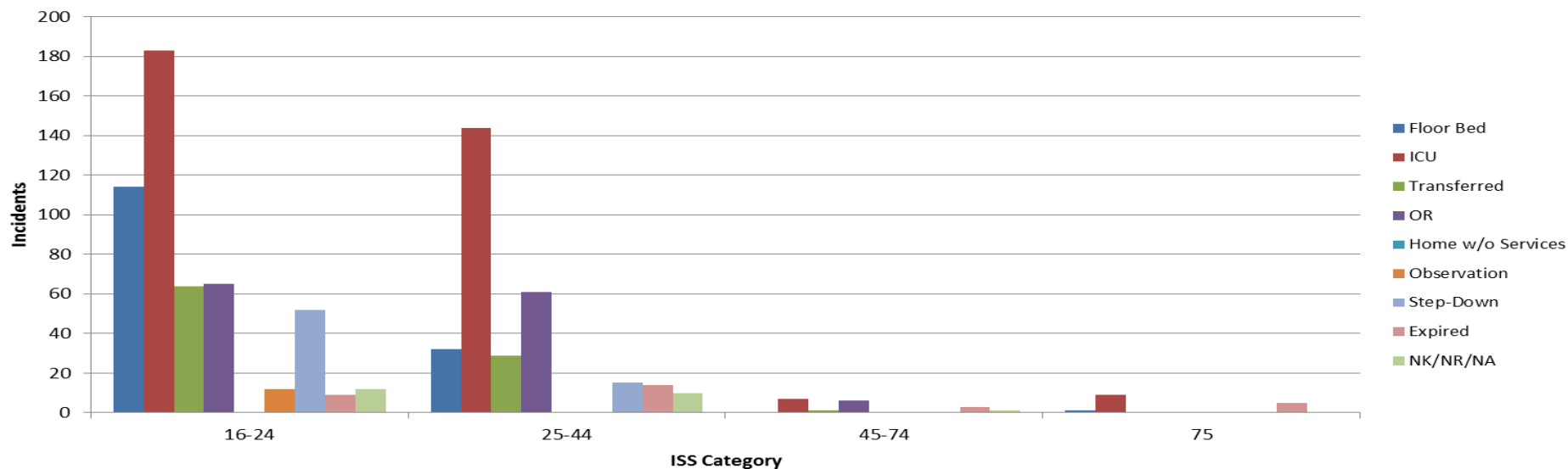|		
Level I and II:	10 facilities	45.7% of data
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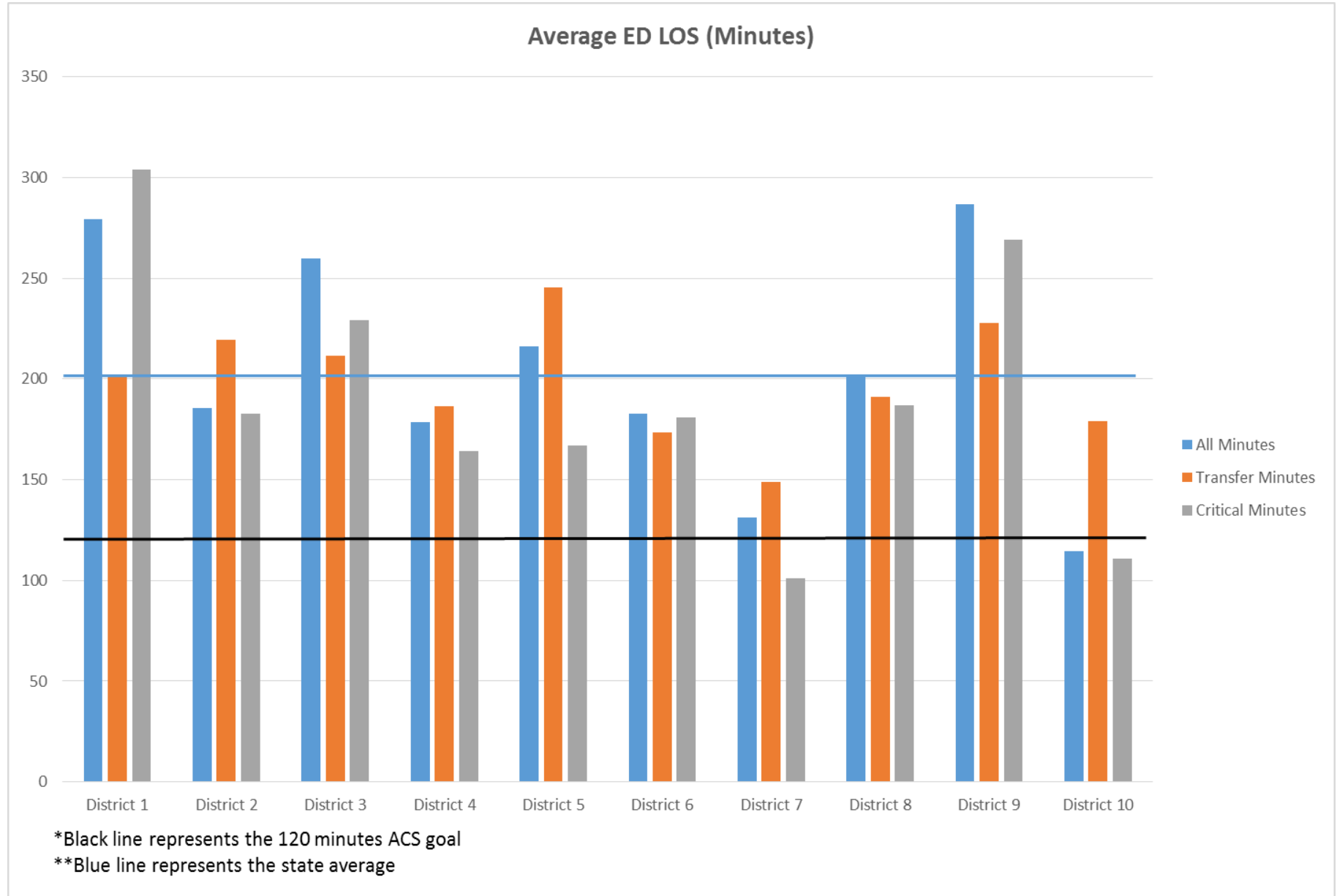
ED Disposition by ISS 1-15
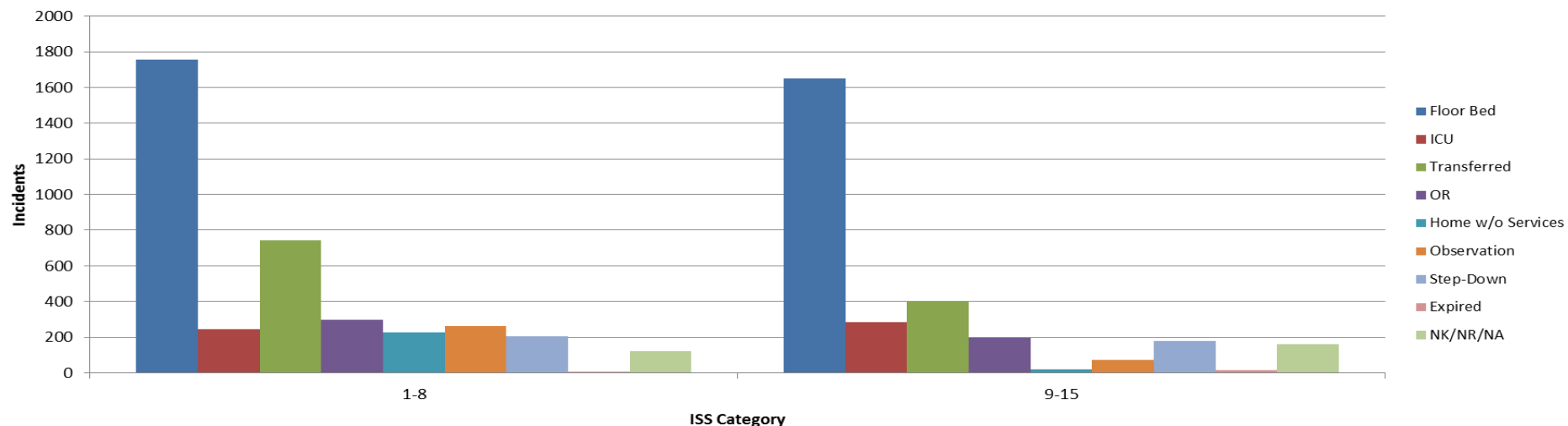
ED Disposition by ISS 16-75

ED Disposition <1%: AMA; Home with services; Other (Jail, Mental Institution, etc.). Please note the difference in axis scale between the top and bottom graphs.
*A table with values for ED Disposition by ISS is found on page 51.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
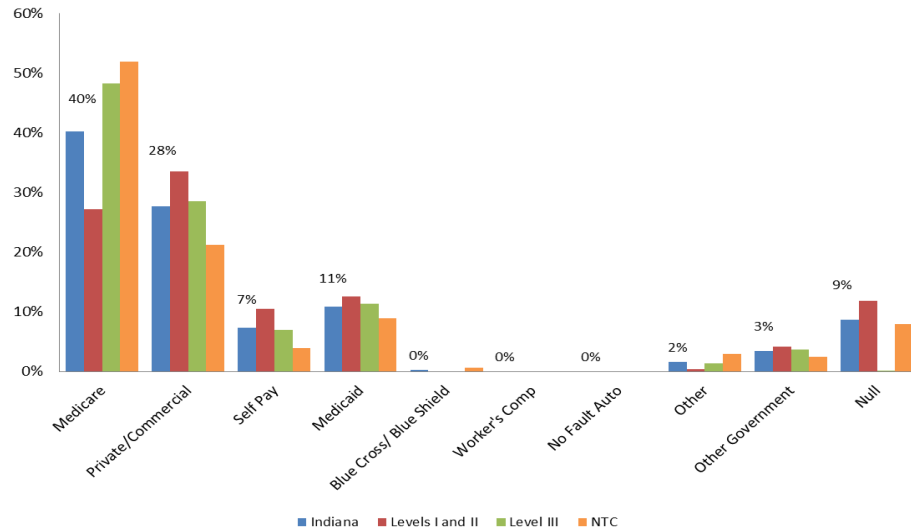**January 1, 2016—March 31, 2016**
8,077 Incidents

Primary Payer Mix

ICU Length of Stay (Days)
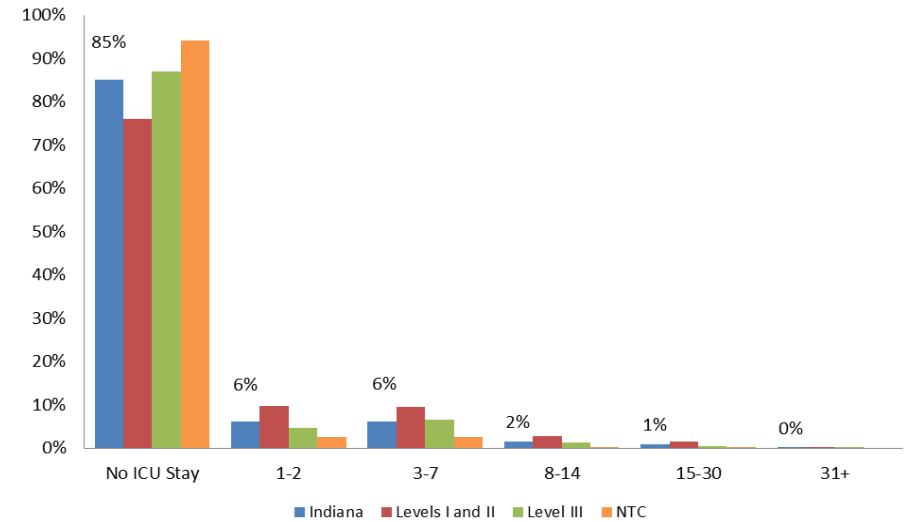
Indiana Trauma Registry

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January 1, 2016—March 31, 2016

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Hospital Length of Stay > 15 days, N=166

Primary Payer Mix
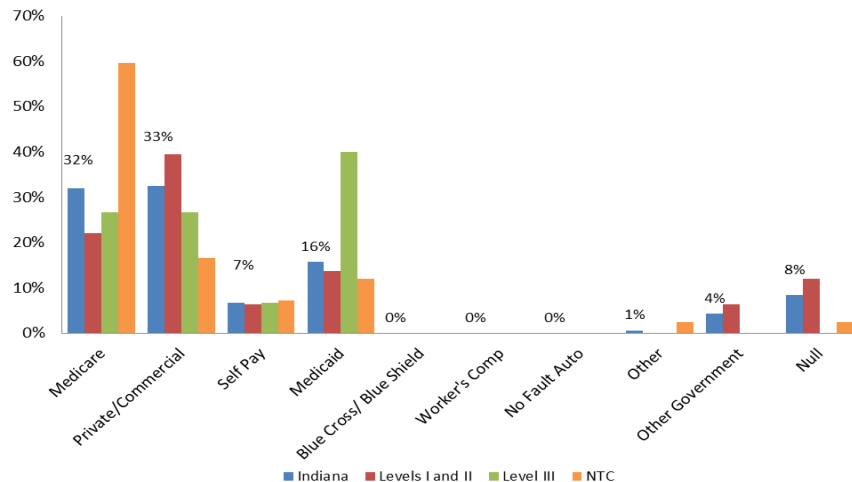
Hospital Disposition
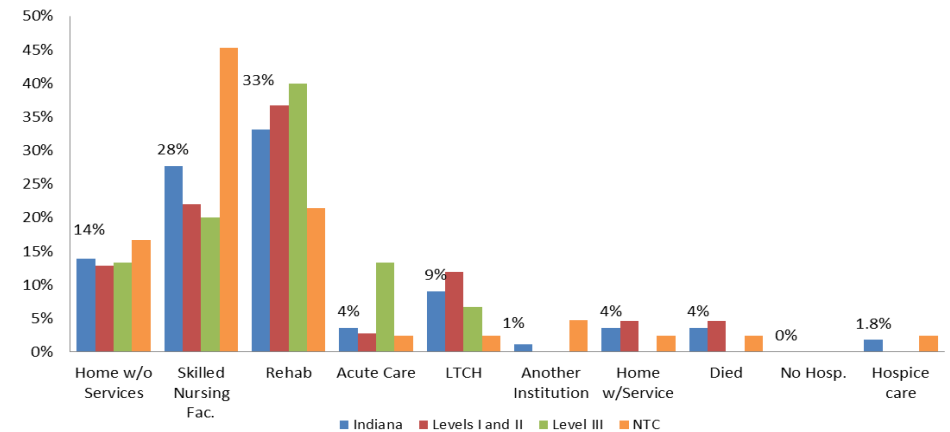
Another Institution includes any other medical facility not defined in the other categories.

Cause of Injury
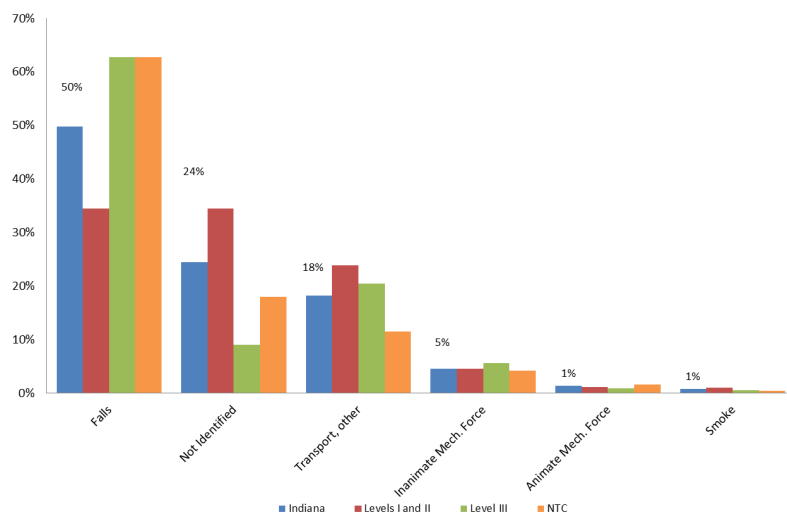
Cause of Injury is based on ICD-10-CM codes as of January 1, 2016. The categories for this variable include:

-Transport
-Falls
-Inanimate Mechanical Forces
-Animate Mechanical Forces
-Drowning
-Breathing
-Electricity/Radiation
-Smoke
-Heat
-Venom
-Forces of Nature

-Overexertion and Travel
-Unspecified
-Poisoning
-Not Identified

Indiana Trauma Registry

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Patient Age (Years)

There were 13 unknown ages.
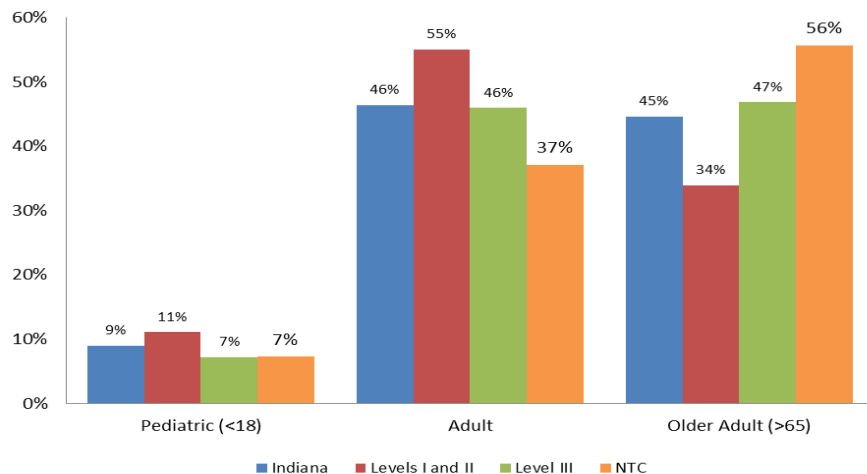
Age Group	Indiana	Level I and II	Level III	NTC
0-14	558	305	57	196
15-24	728	437	79	212
25-34	727	439	85	203
35-44	568	332	58	178
45-54	741	393	93	255
55-64	1039	483	146	410
65-74	988	380	145	463
75-84	1300	479	162	659
85+	1415	434	172	809
NK/NR	1415	434	172	809
Total	8077	3694	997	3386

Patient Age Groupings

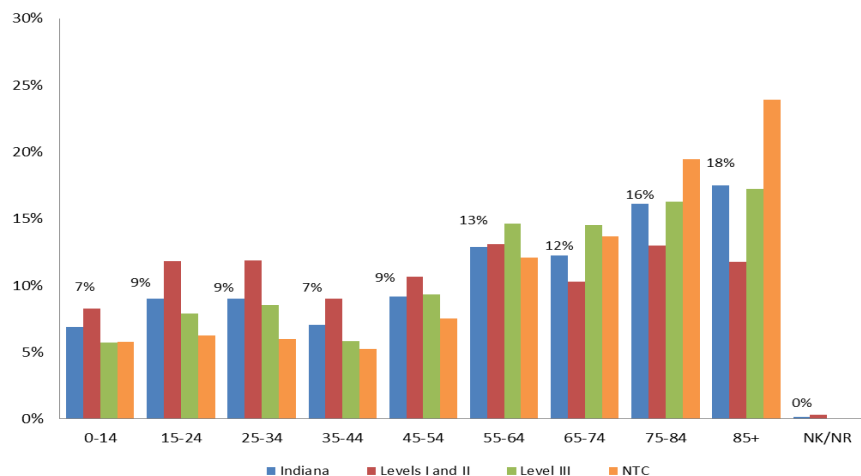| Age Group	Indiana	Level I and II	Level III	NTC
Pediatric (<18)	725	408	72	245
Adult	3741	2026	458	1257
Older Adult (>65)	3598	1248	467	1883
Total	8064	3682	997	3385

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
**8,077 Incidents**

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Patient Gender
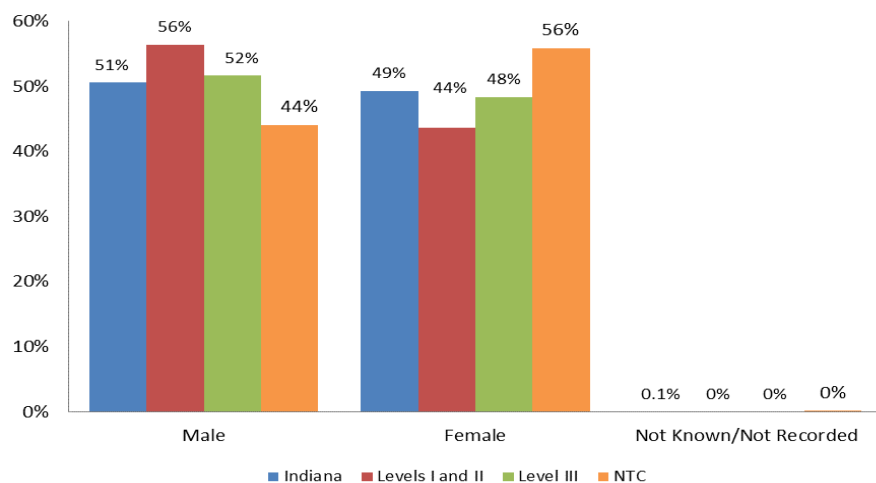
Gender	Indiana	Level I and II	Level III	NTC
Male	4088	2083	515	1490
Female	3983	1611	482	1890
Unknown	6	0	0	6
Total	8077	3694	997	3386

Patient Race
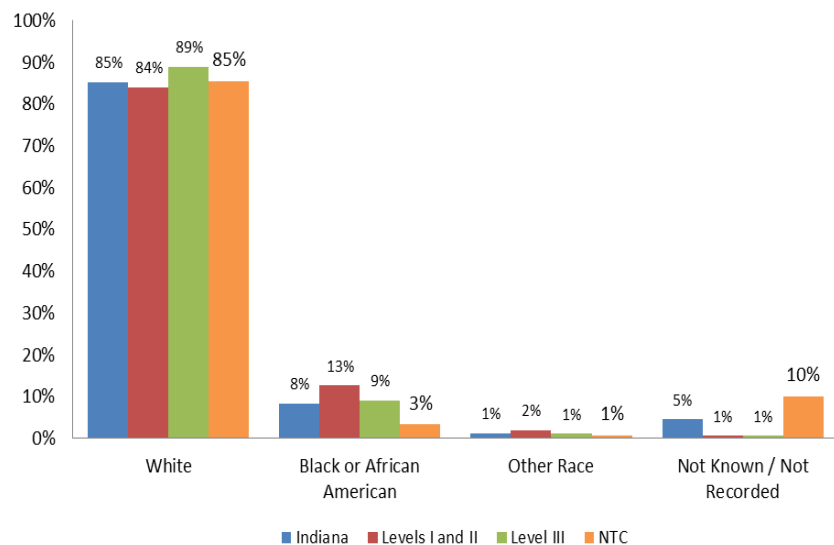
Race	Indiana	Level I and II	Level III	NTC
White	6885	3106	886	2893
Black or African American	670	468	90	112
Other	104	70	11	23
Not Known/Not Recorded	369	23	6	340
American Indian or Alaska Native	6	4	1	1
Asian	36	20	3	13
Native Hawaiian or Pacific Islander	7	3	0	4
Total	8077	3694	997	3386

<1% Race - Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native

26

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

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Injury Severity Score (ISS)

There were 18 and 15 cases in the 45-74 and 75+ categories, respectively
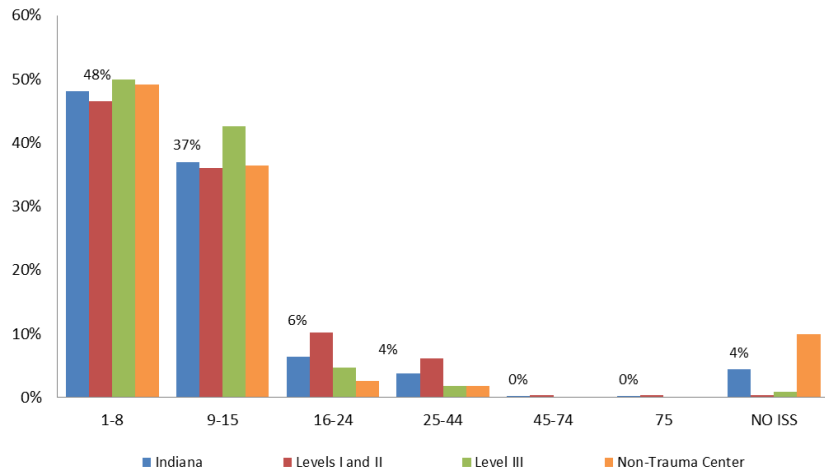
ISS Category	Indiana	Level I and II	Level III	NTC
1-8	3883	1719	498	1666
9-15	2987	1330	425	1232
16-24	511	376	46	89
25-44	306	228	18	60
45-74	18	14	1	3
75	15	13	0	2
No ISS	357	14	9	334
Total	8077	3694	997	3386
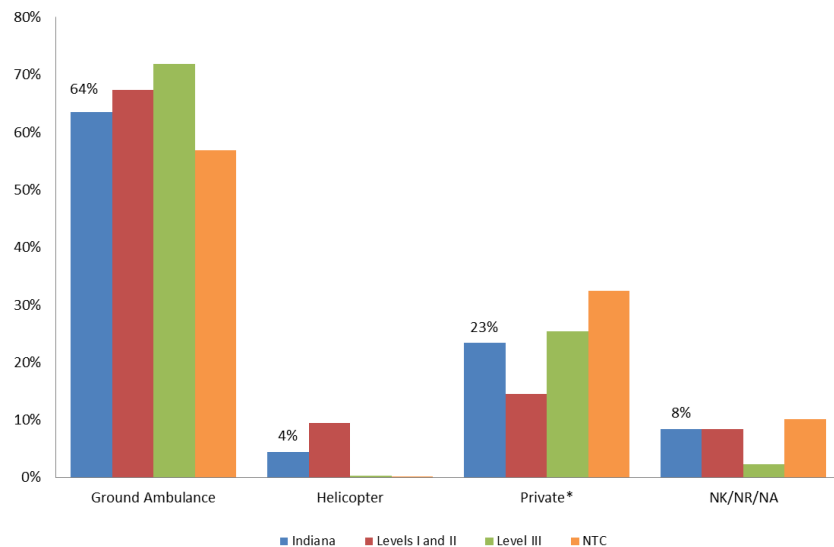
Transport Mode

Transport Mode	Indiana	Level I and II	Level III	NTC
Ground Ambulance	5133	2489	717	1927
Helicopter	358	348	3	7
Private	1887	536	253	1098
NK/NR/NA	677	311	23	343
Police	22	10	1	11
Other	0	0	0	0
Total	8077	3694	997	3386

<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

Indiana Trauma Registry

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|		
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Cause of Injury
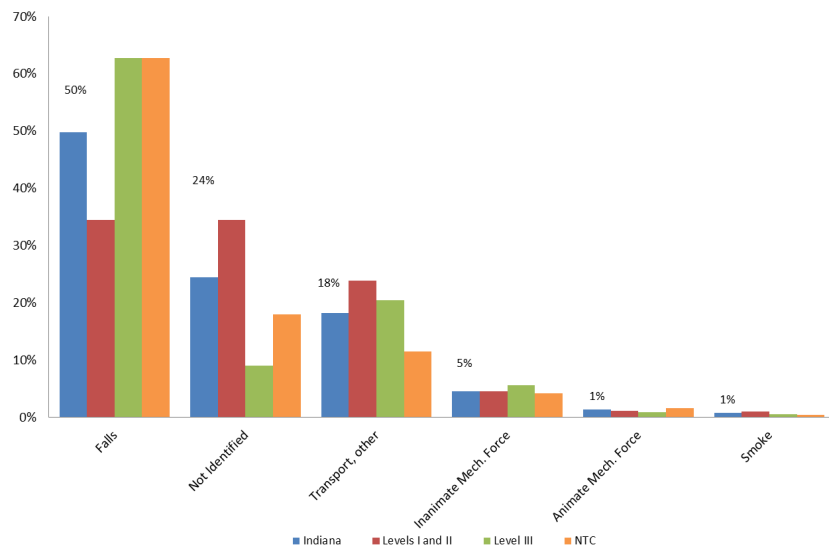
<1% Cause of Injury Categories: Heat, Unspecified, Electricity/Radiation, Forces of Nature, Drowning, Breathing, Venom, Noxious Substances, Overexertion and Travel and Poisoning.

Cause of Injury	Indiana	Level I and II	Level III	NTC
Falls	4022	1273	625	2124
Not Identified	1972	1273	90	609
Transport	1476	882	204	390
Inanimate Mech. Force	367	170	56	141
Animate Mech. Force	109	44	9	56
Smoke	59	37	6	16
Heat	36	8	3	25
Unspecified	24	1	3	20
Electric/ Radiation	9	4	0	5
Nature	2	2	0	0
Drowning	1	0	1	0
Total	8077	3694	997	3386

Indiana Trauma Registry

Statewide Quarter 1 Data Report
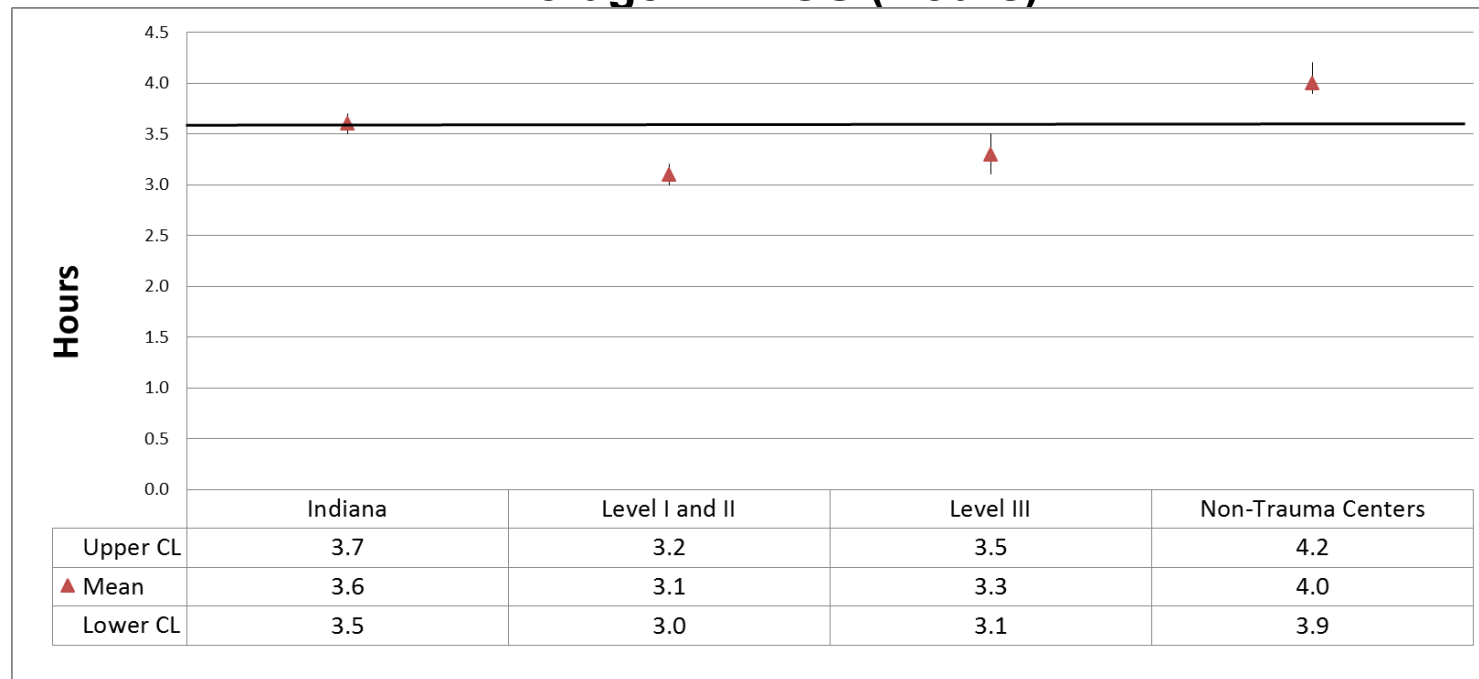**January 1, 2016—March 31, 2016**
8,077 Incidents

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All Patients
Average ED LOS (Hours)

	Indiana	Level I and II	Level III	Non-Trauma Centers
Upper CL	3.7	3.2	3.5	4.2
▲ Mean	3.6	3.1	3.3	4.0
Lower CL	3.5	3.0	3.1	3.9

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

The ED LOS for these graphs was modeled using time-to-event analysis. The purposes of using this analysis were to account for censoring (death) and to see how variables influence ED LOS. The outcome variable was ED LOS and the independent variables were total GCS and age. If total GCS was missing but manual total GCS was recorded, then the manual total GCS was used. These two variables were used because they were the most similar to variables used in the published, peer-reviewed literature on ED LOS. Both were significant in the model. Increasing total GCS and age led to a slightly shorter ED LOS. Hospitals that did not have enough incidents with total GCS or age could not be modeled.

In the chart on the left, note the trauma center average is above the mean and the non-trauma center is below the mean. The mean, 95% confidence limit and lower confidence limit are listed for each group.

In the chart on the right, the data is for the trauma centers. The trauma center average is in the first column on the left side. The information for each trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit are listed for each group.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

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All Patients
Level I and II Trauma Centers ED LOS (Hours)

	Levels I and II	ID 15	ID 2	ID 66	ID 4	ID 104	ID 84
Upper CL	3.2	1.8	3.1	3.0	3.3	3.7	5.1
▲ Mean	3.1	1.6	2.6	2.8	2.9	3.4	4.7
Lower CL	3.0	1.5	2.1	2.6	2.6	3.1	4.3

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

All Patients
Level III Trauma Centers ED LOS (Hours)

	Level III	ID 103	ID 105	ID 119	ID 107	ID 51
Upper CL	3.5	3.0	2.9	3.5	4.1	5.7
▲ Mean	3.3	2.5	2.7	3.1	3.8	4.9
Lower CL	3.1	2.0	2.5	2.6	3.4	4.1

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2016—March 31, 2016

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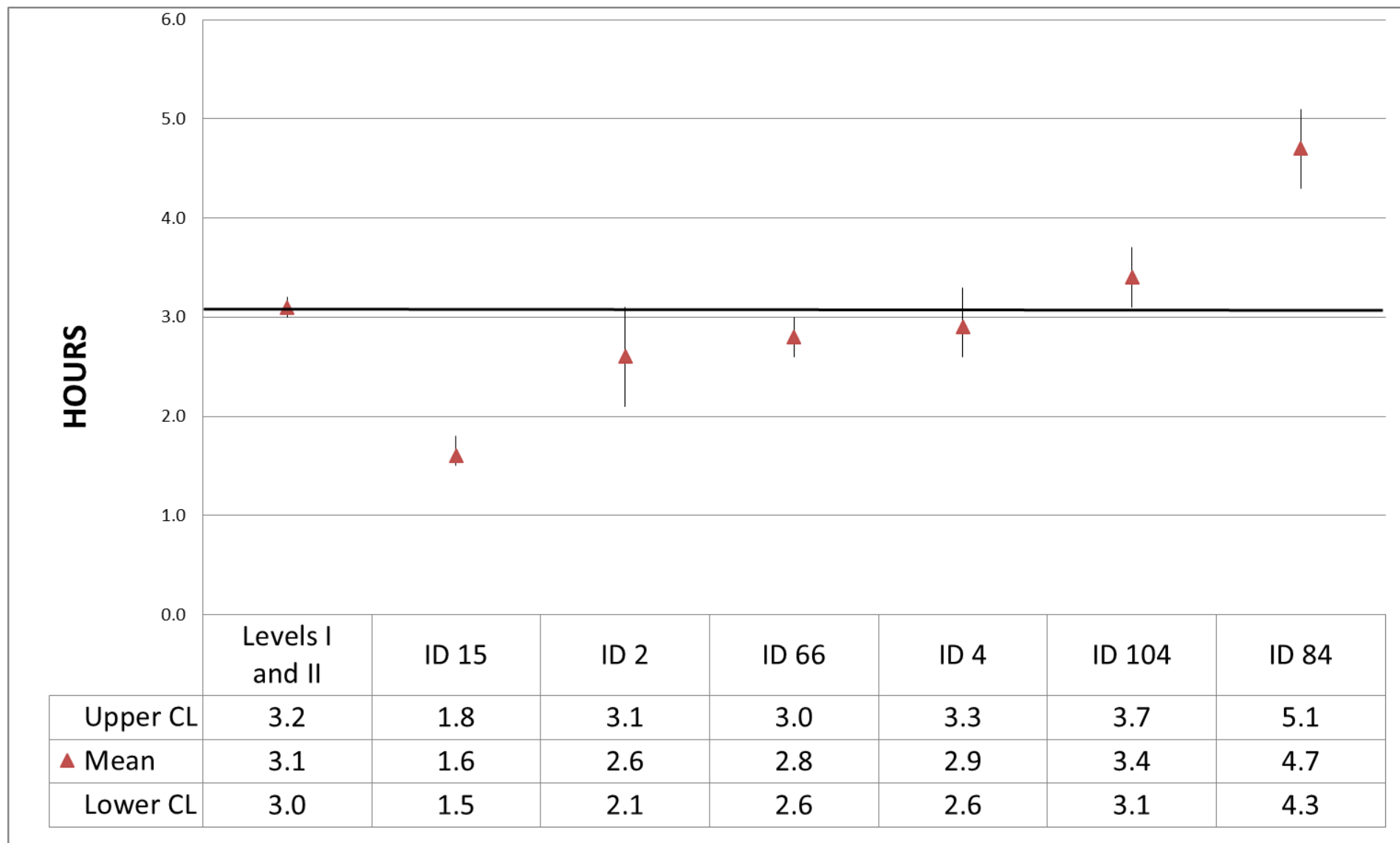
Level I and II:	10 facilities	45.7% of data
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All Patients
Non-trauma Centers ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2016—March 31, 2016
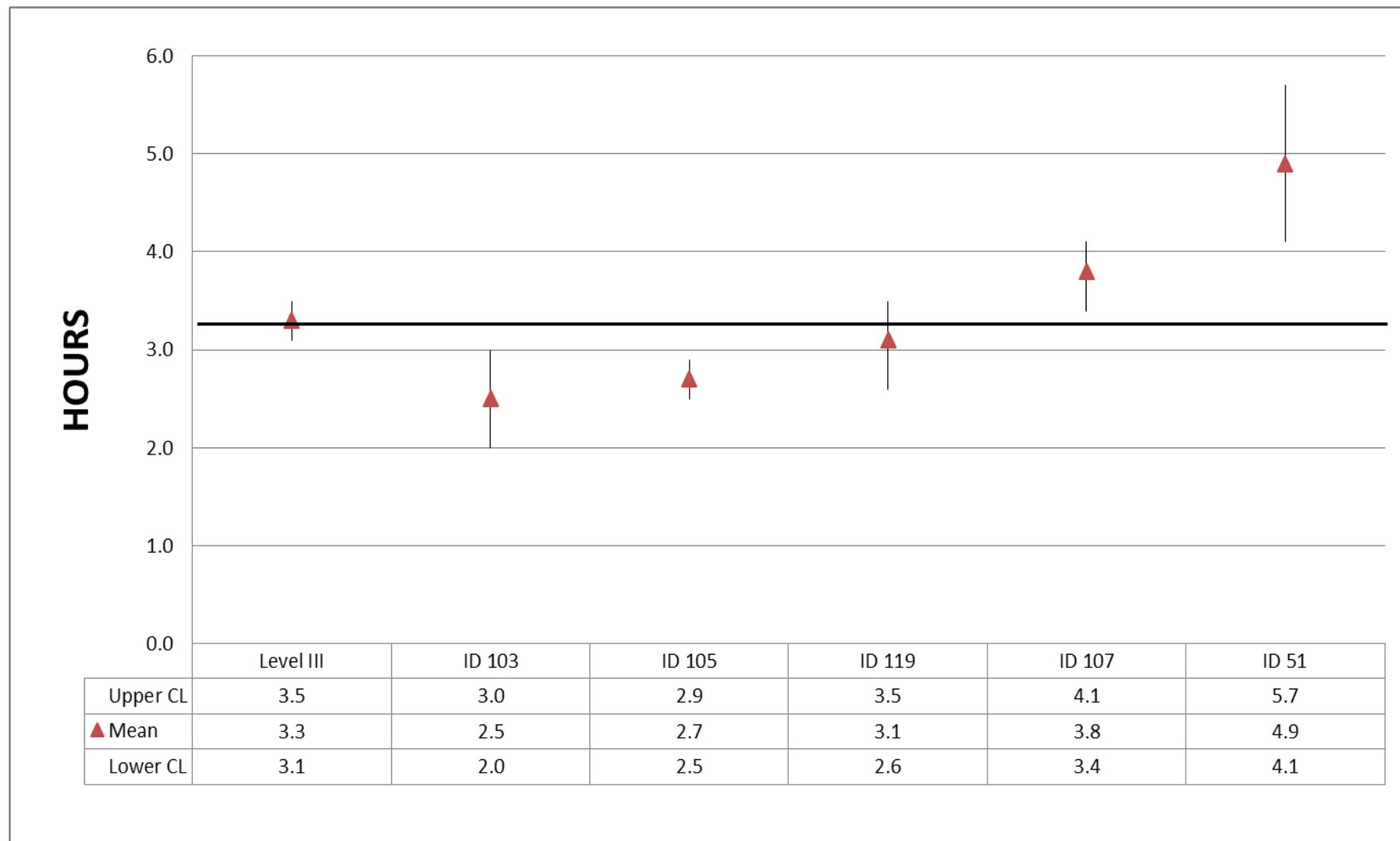
8,077 Incidents

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All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 1 Data Report
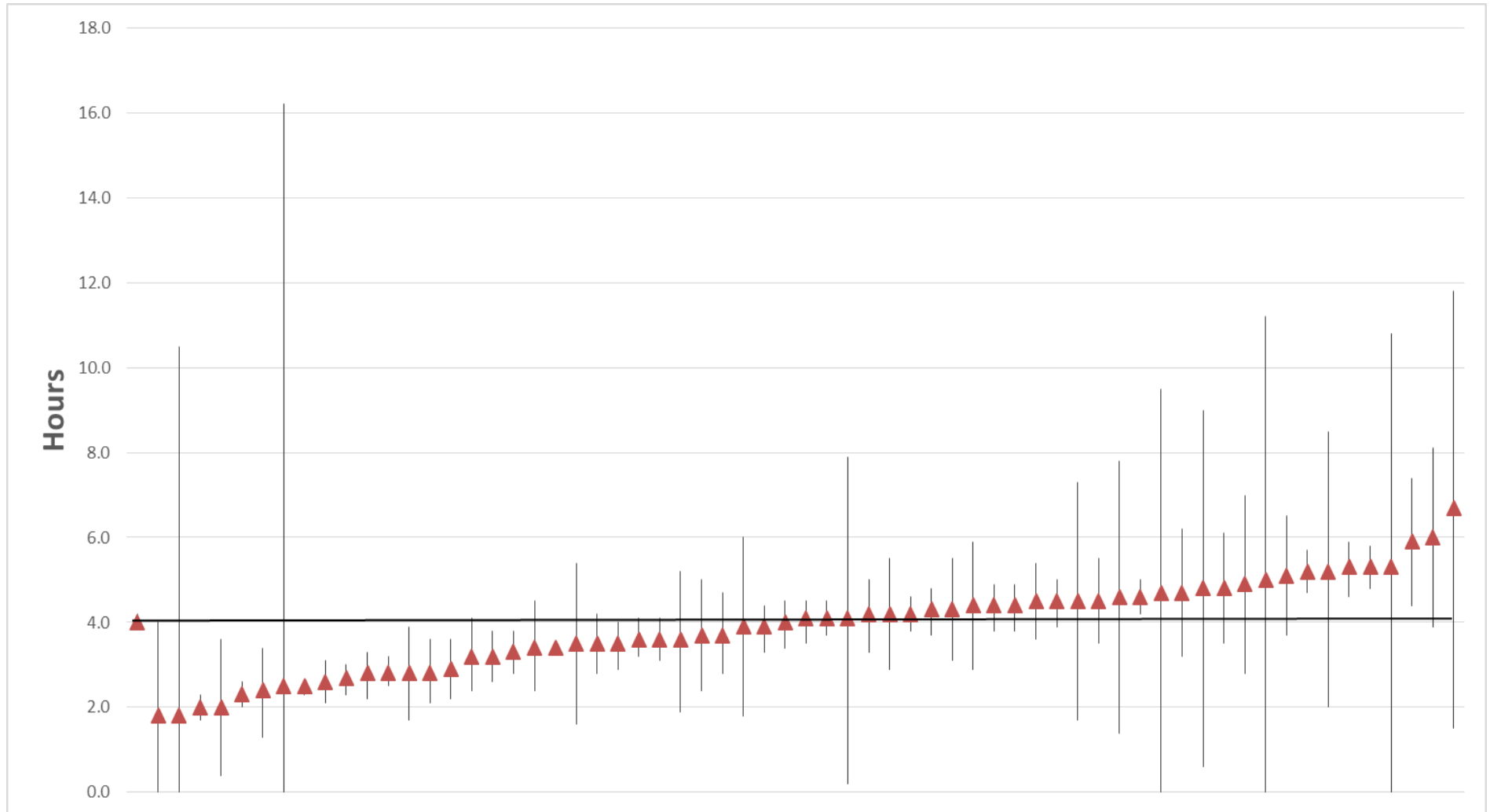January 1, 2016—March 31, 2016
8,077 Incidents

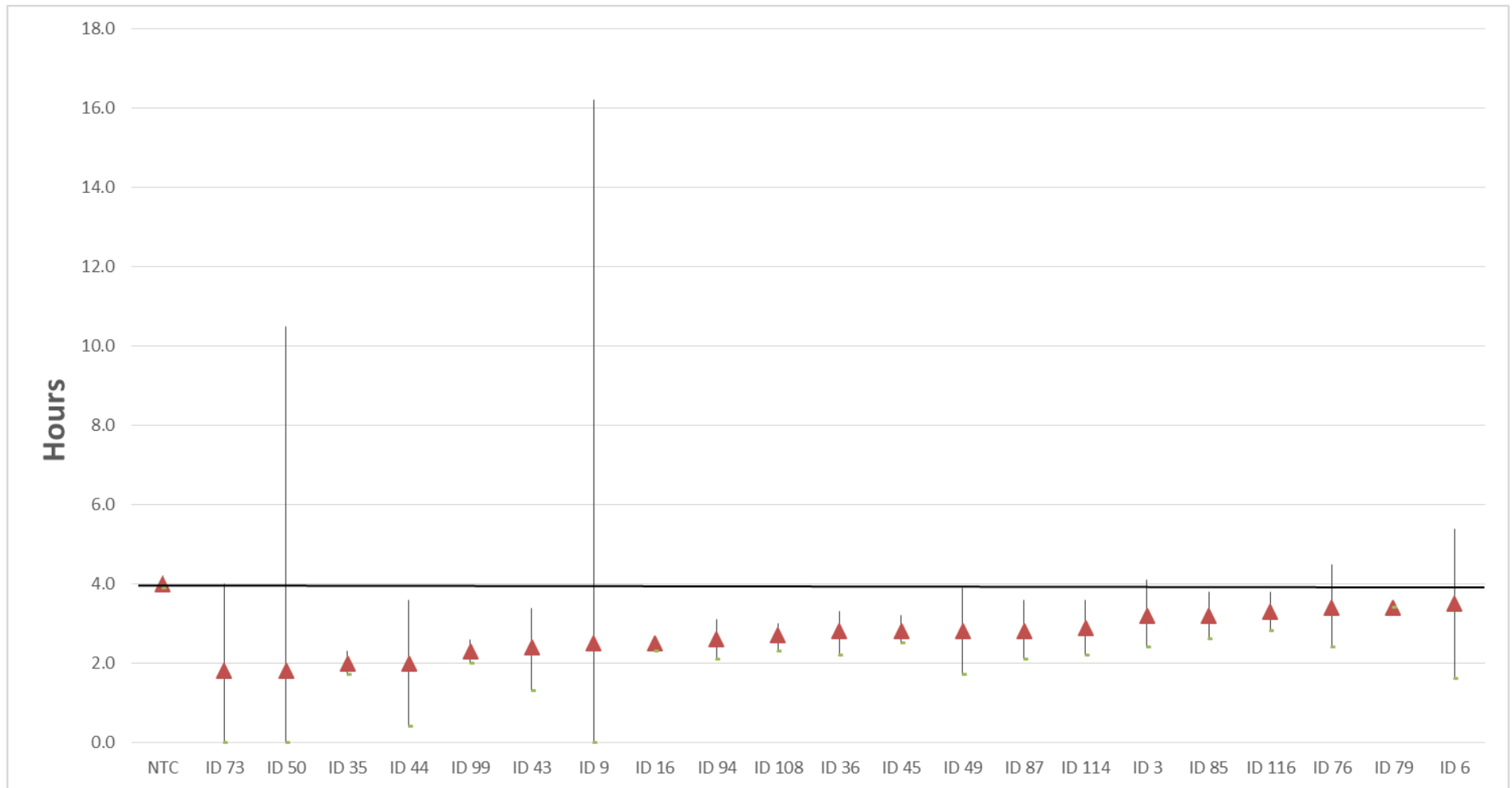95 Total Hospitals Reporting
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All Patients
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Average ED LOS (Hours)

Indiana Trauma Registry

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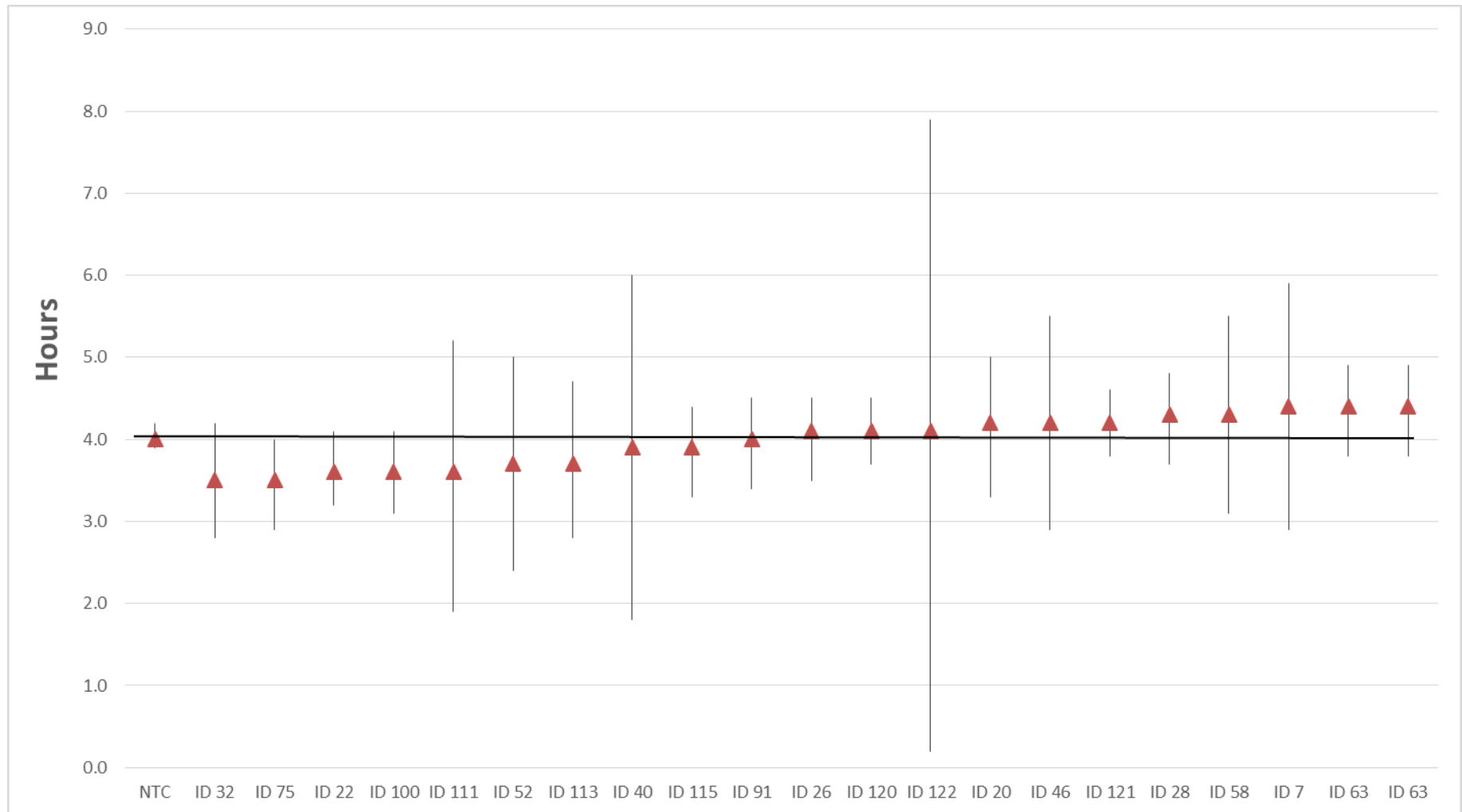### *ED Disposition = Transferred*

Average ED LOS (Hours)

	Indiana	Levels I and II	Level III	Non-Trauma Centers
Upper CL	3.6	3.1	2.8	3.7
▲ Mean	3.4	2.5	2.5	3.5
Lower CL	3.2	1.8	2.2	3.3

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

ED Disposition = Transferred

Level I and II Trauma Centers- Average ED LOS (Hours)

	Levels I and II	ID 66	ID 15	ID 2	ID 104	ID 84	ID 4
Upper CL	3.1	1.3	2.6	5.9	2.7	6.6	7.3
▲ Mean	2.5	1.3	1.9	2.2	2.7	4.1	7.3
Lower CL	1.8	1.3	1.2	0.1	2.7	1.9	7.3

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents

ED Disposition = Transferred

Level III Trauma Centers- Average ED LOS (Hours)

	Level III	ID 103	ID 105	ID 51	ID 107	ID 119
Upper CL	2.8	3.4	4.1	6.3	7.8	5.2
▲ Mean	2.5	1.5	1.7	2.9	3.3	3.3
Lower CL	2.2	0.5	0.5	1.1	1.4	1.3

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ED Disposition=Transferred
Non-Trauma Centers
Average ED LOS (Hours)

Indiana Trauma Registry

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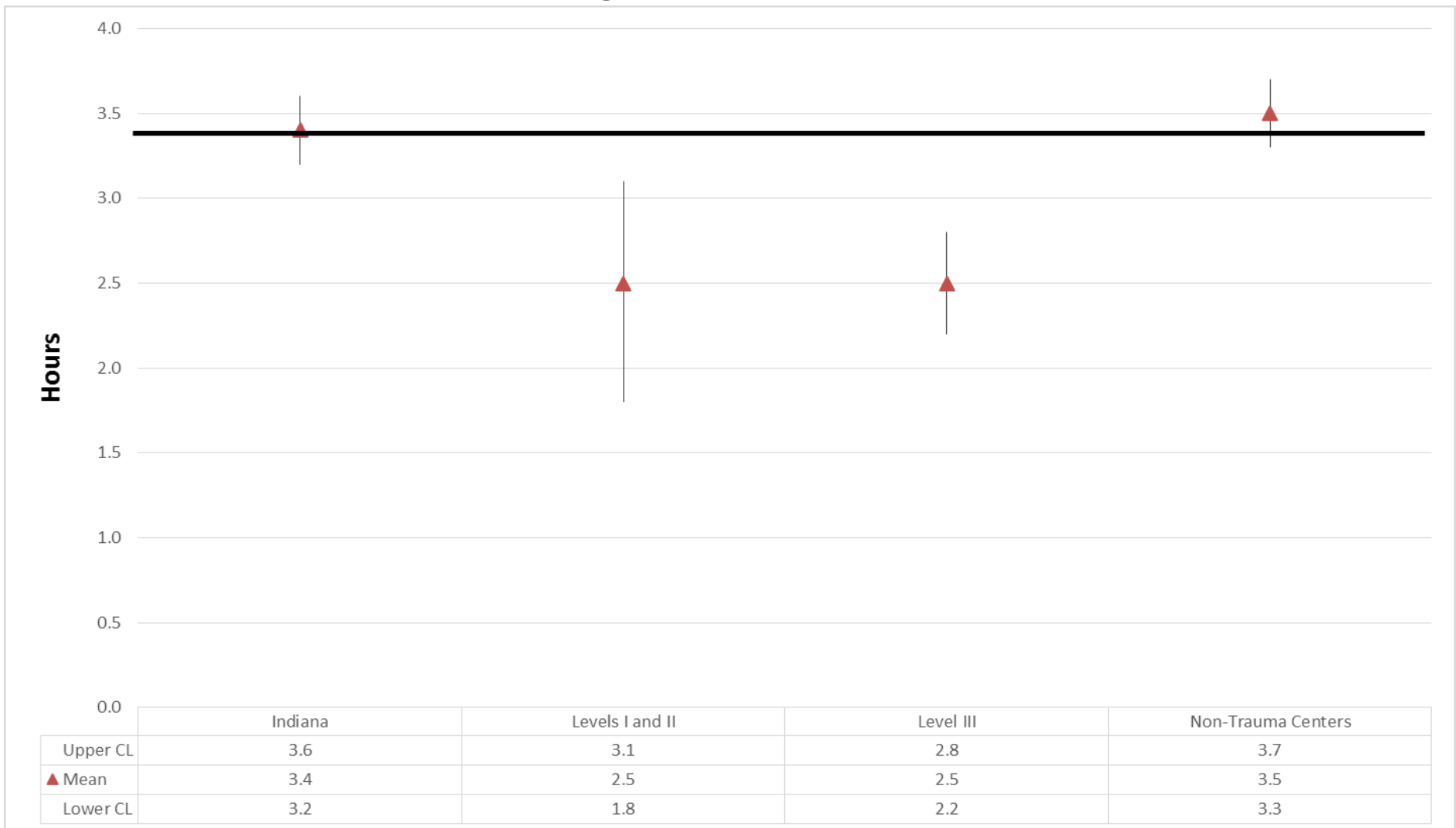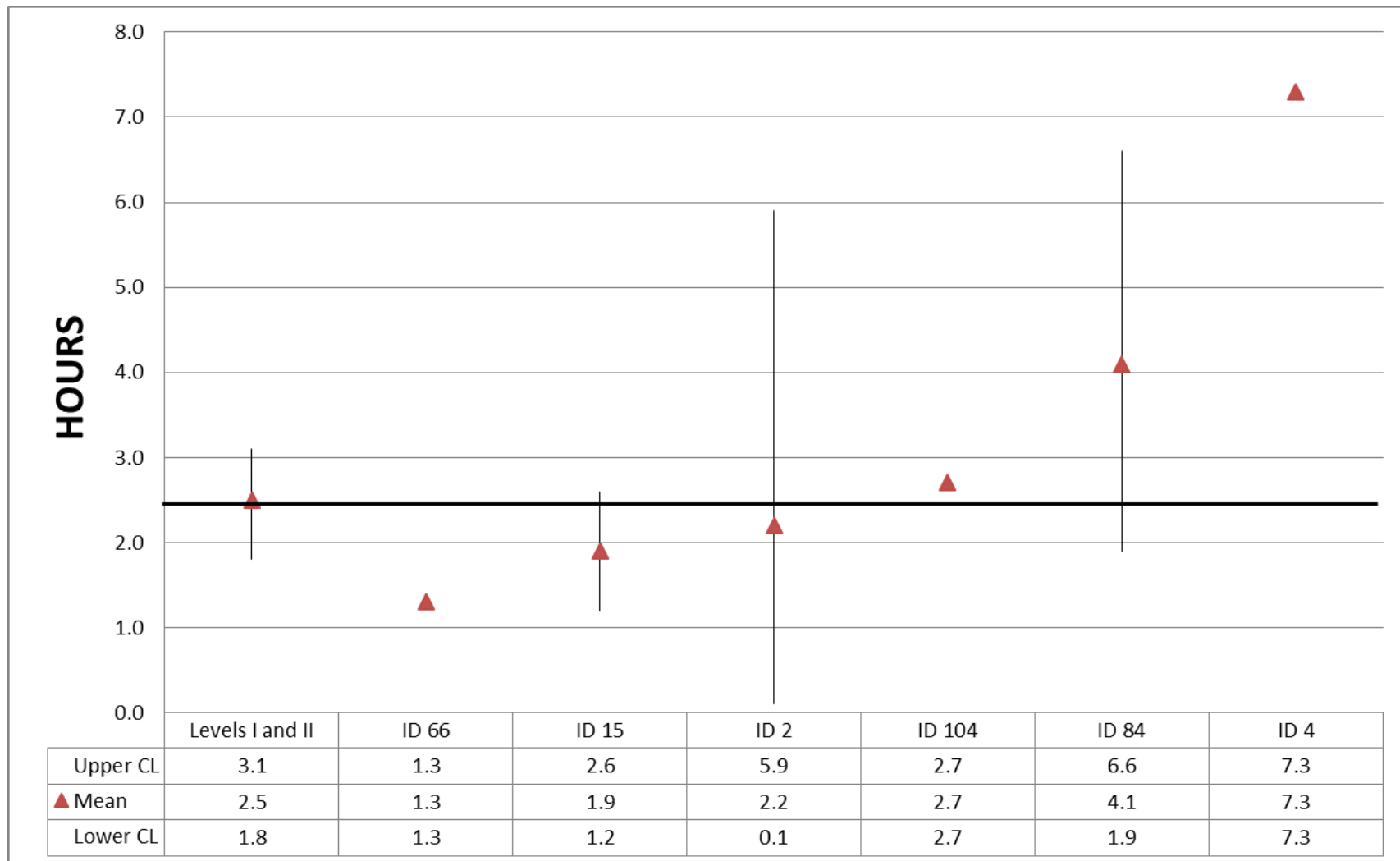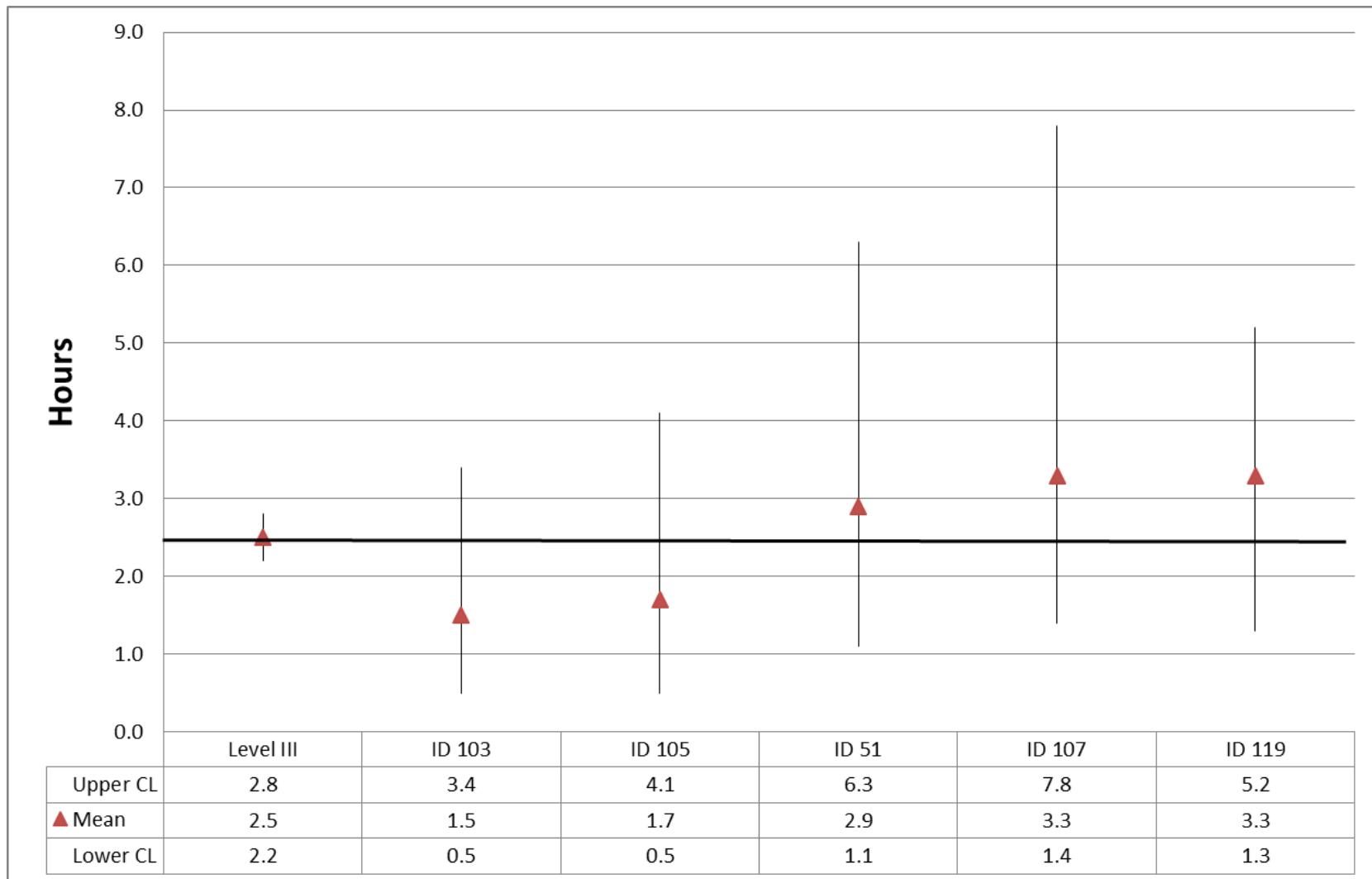Level I and II: 10 facilities   45.7% of data
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Non-Trauma Centers
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Indiana Trauma Registry

Statewide Quarter 1 Data Report
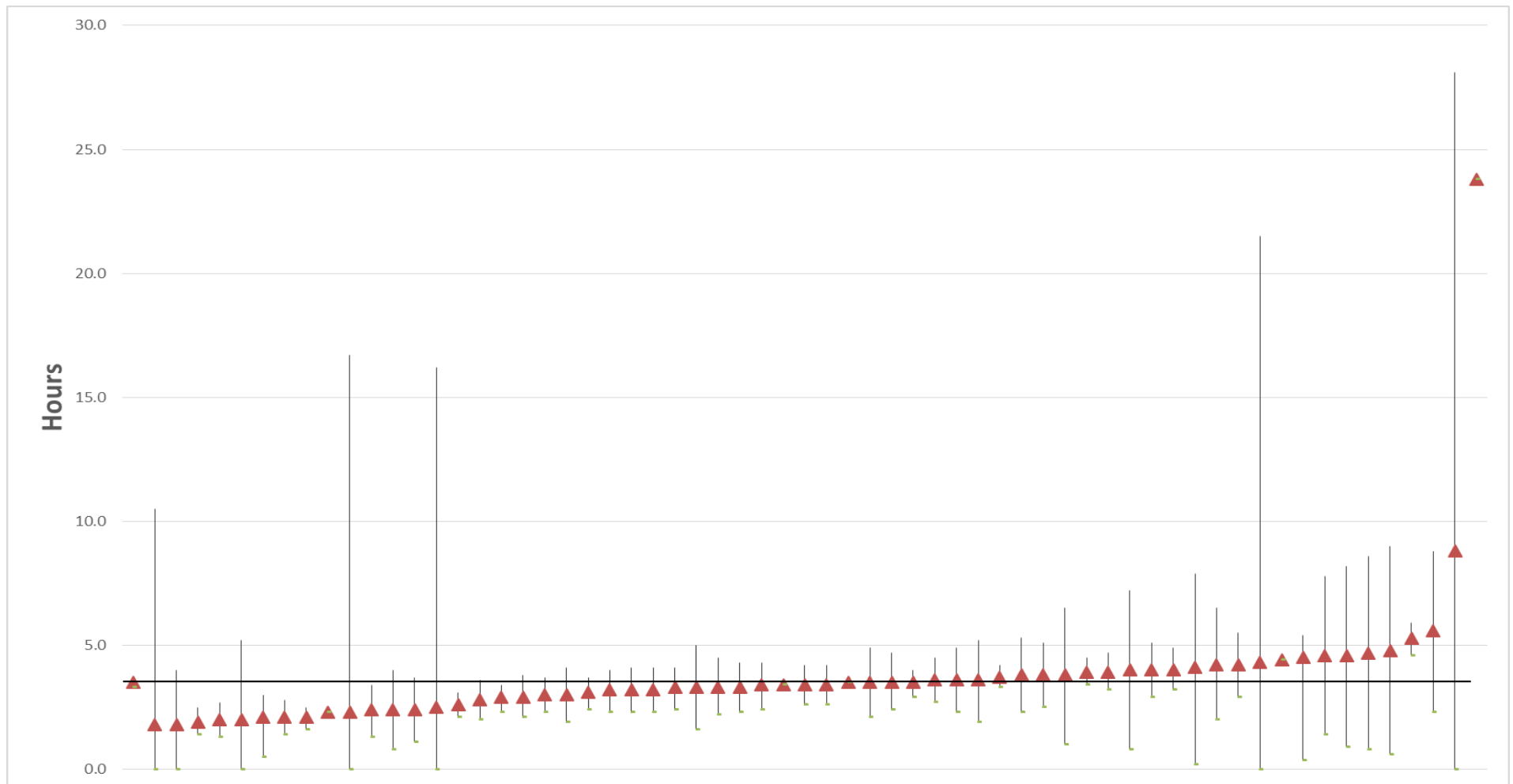**January 1, 2016—March 31, 2016**
8,077 Incidents

Critical Patients, ED Disposition = Transferred

Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 1 Data Report
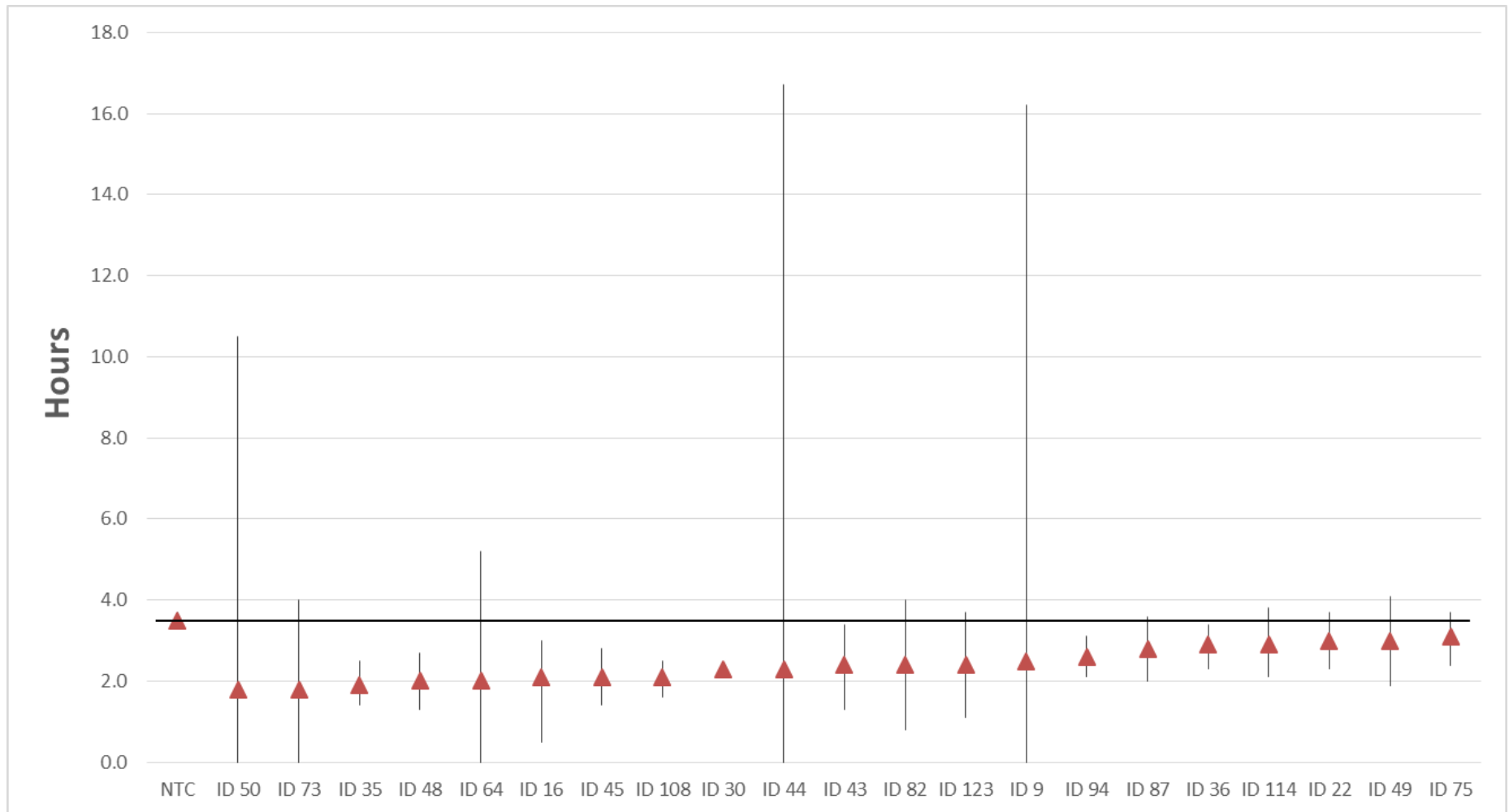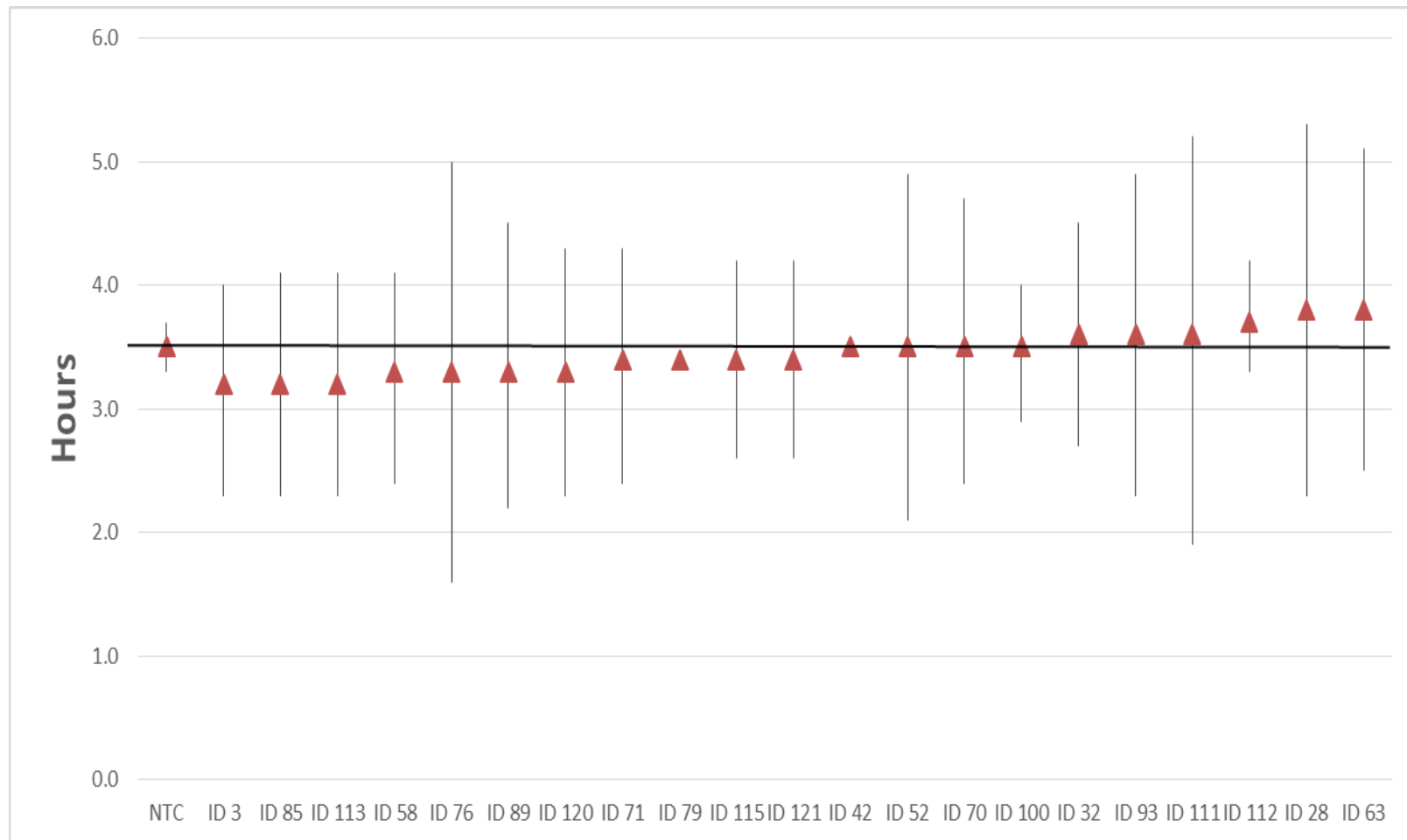**January 1, 2016—March 31, 2016**
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Critical Patients, ED Disposition = Transferred

Level I and II Trauma Centers - Average ED LOS (Hours)

	Levels I and II	ID 15	ID 84	ID 2	ID 4
Upper CL	3.8	1.2	1.9	3.1	7.3
▲ Mean	2.3	1.2	1.9	1.9	7.3
Lower CL	0.9	1.2	1.9	0.6	7.3

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Critical Patients, ED Disposition = Transferred

Level III Trauma Centers - Average ED LOS (Hours)

	Level III	ID 105	ID 119	ID 103	ID 51	ID 107
Upper CL	3.0	1.2	1.5	3.2	3.8	12.5
▲ Mean	2.2	0.8	1.5	1.5	2.8	3.7
Lower CL	1.5	0.4	1.5	0.0	1.9	0.0

Indiana Trauma Registry

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(Non-Trauma) Hospitals:	76 facilities	41.9% of data

Critical Patients, ED Disposition = Transferred
Non-Trauma Centers - Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2016—March 31, 2016
8,077 Incidents
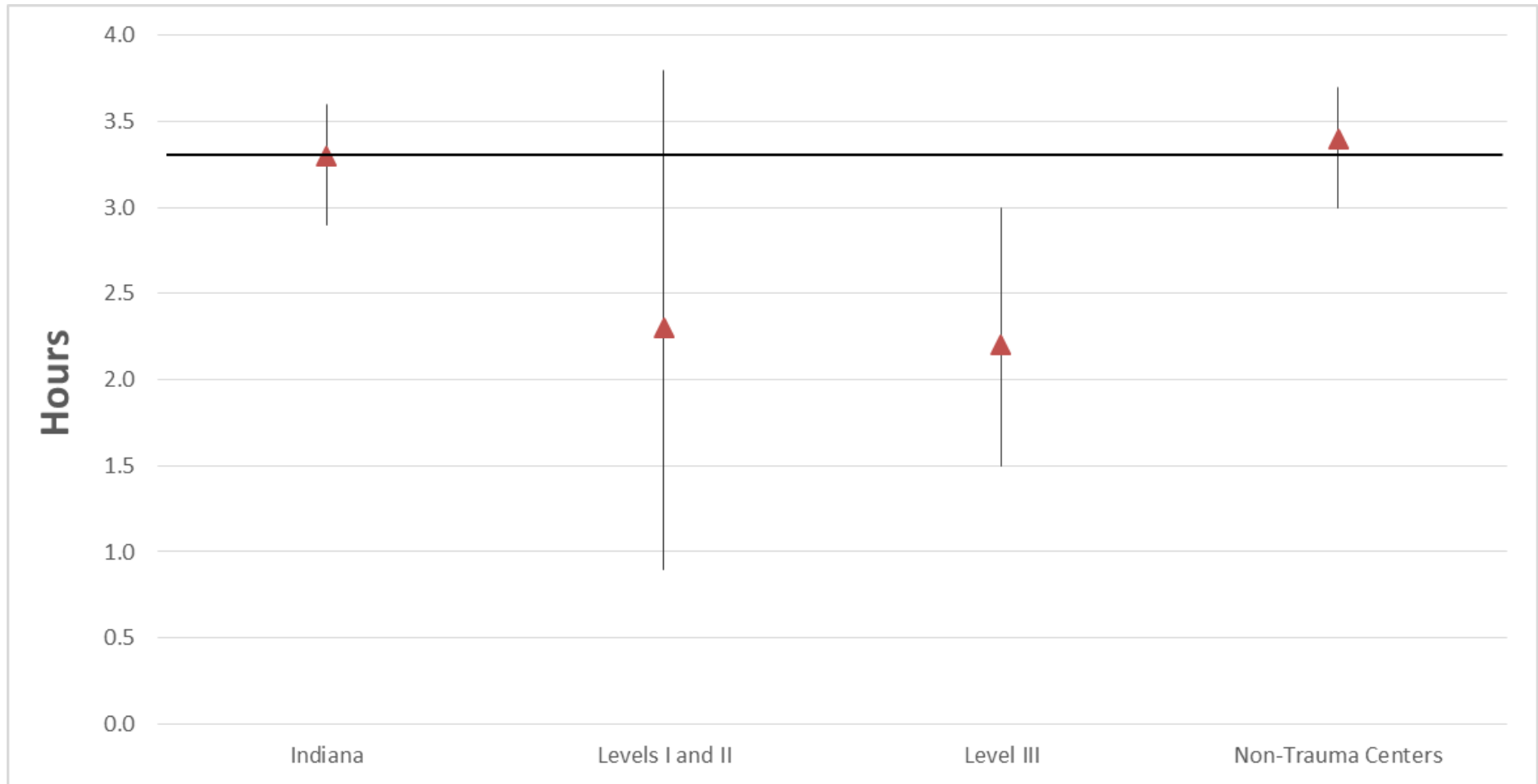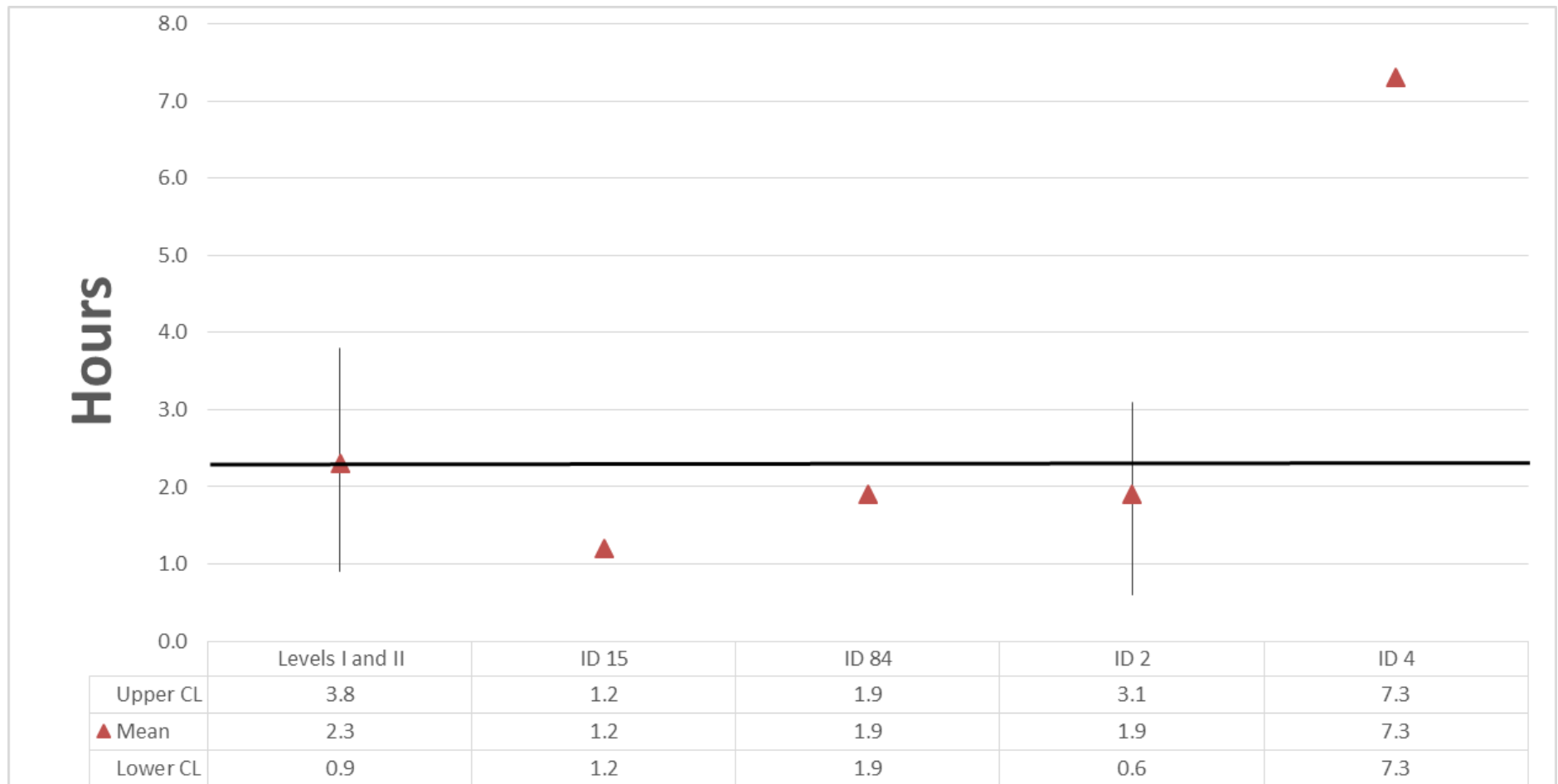
95 Total Hospitals Reporting

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Indiana Trauma Registry

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January 1, 2016—March 31, 2016
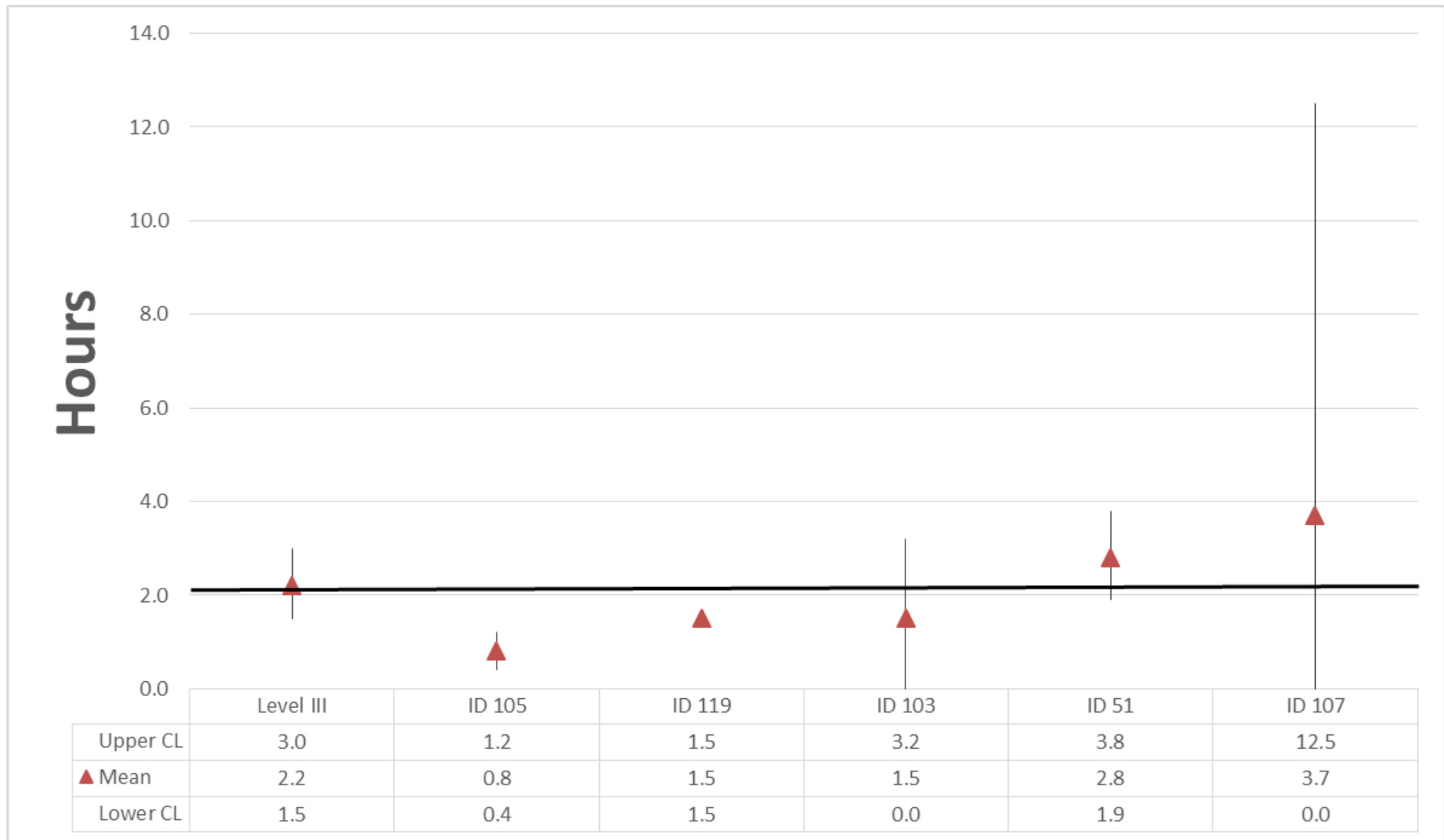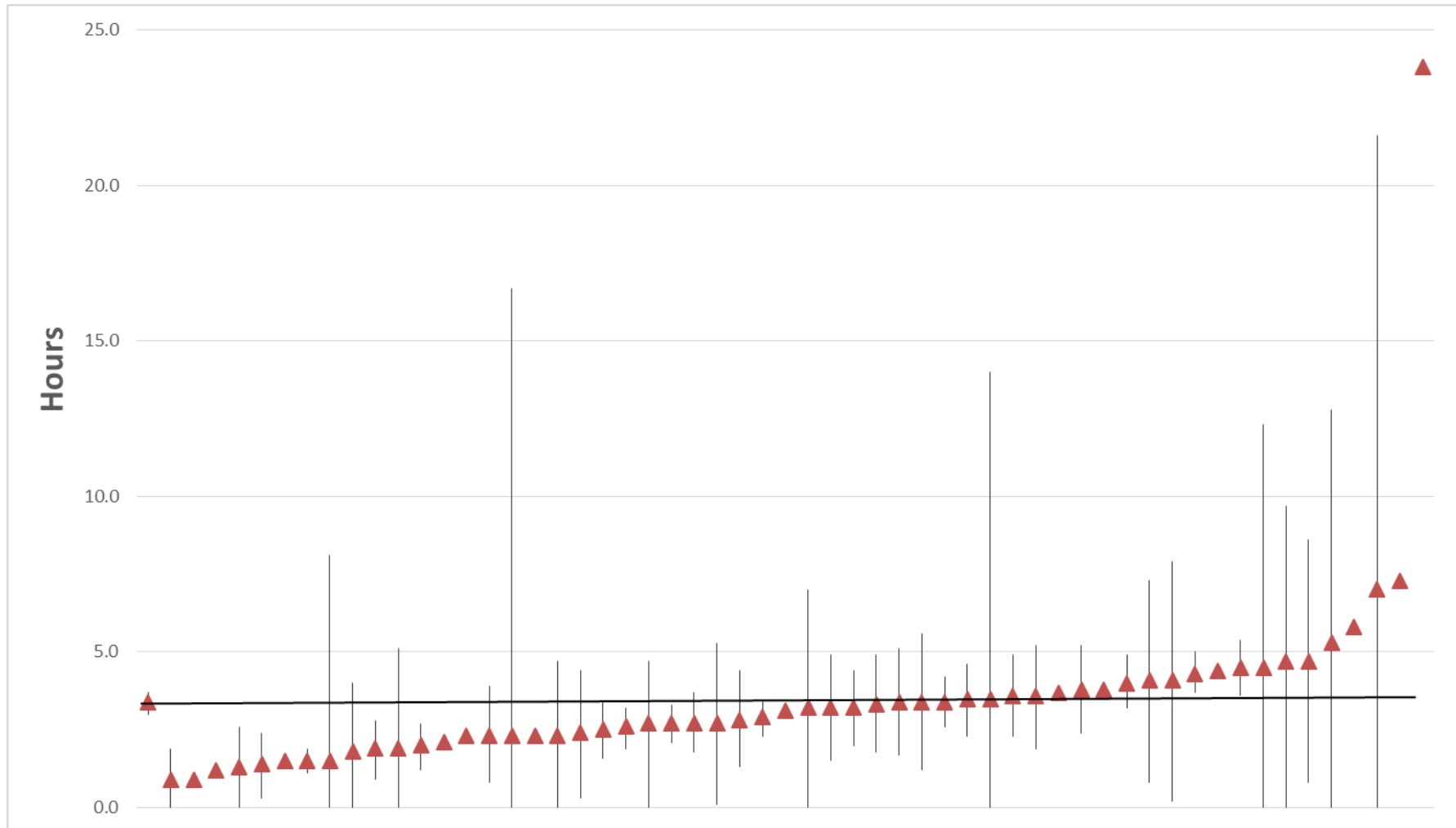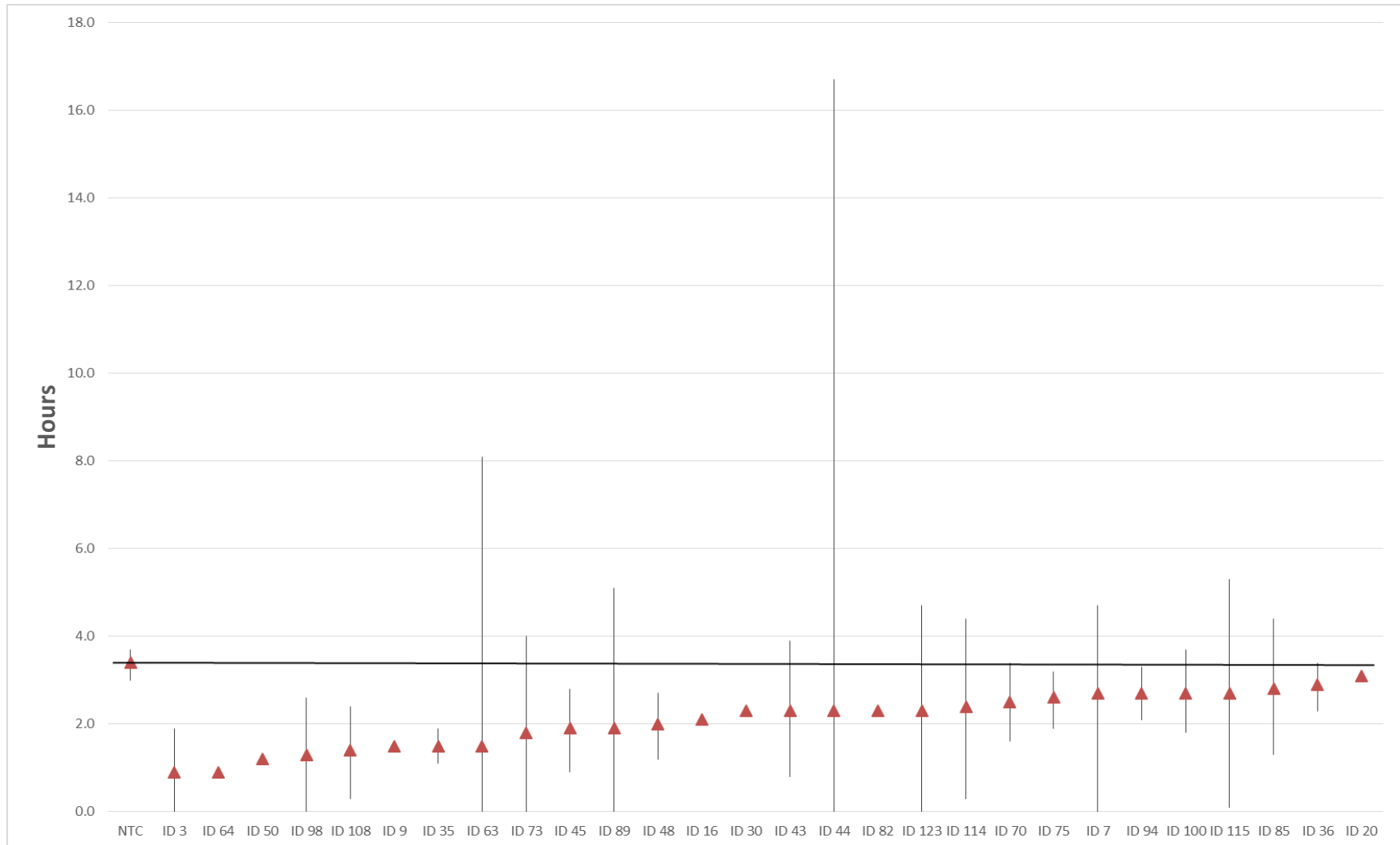**8,077 Incidents**

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ED Length of Stay

ED Length of Stay (minutes)				
	Indiana Average	Level I and II	Level III	NTC
N=	4956	1901	581	2474
Average	215.9	185.8	199.3	242.9
Std. Deviation	199.2	192.1	161.6	208.6
Minimum	0	1	0	0
Quartile 1	142	131	150	150
Median	176	141	166	202
Quartile 3	296	311	288	288
Maximum	2308	1787	1911	2308

ED Disposition

ED Disposition (count)				
	Indiana	Level I and II	Level III	NTC
Floor Bed	3741	1664	486	1591
ICU	880	679	78	123
Transferred	1336	60	181	1095
OR	626	385	192	149
Home w/o Services	253	222	19	12
Observation	363	225	30	108
Step-Down	461	226	53	182
Expired	56	28	11	17
AMA	3	2	0	1
Home W/ Services	1	1	0	0
17	17	16	0	1
NK/NR/NA	8077	3694	1097	3386

*A bar graph of ED Disposition is found on page 2.
*A bar graph of ED Length of Stay is found on page 2.

Indiana Trauma Registry

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ED Length of Stay by ISS

ED Length of Stay (minutes)								
ISS Category	Indiana Average	Indiana Average	Level I and II	Level I and II	Level III	Level III	Non-Trauma Centers	Non-Trauma Centers
	Counts	**Minutes**	**Counts**	**Minutes**	**Counts**	**Minutes**	**Counts**	**Minutes**
1-8	2411	230	857	202.8	275	229.7	1279	248.3
9-15	1848	211.2	688	194.4	258	180	902	232.9
16-24	309	152.2	223	135.2	32	152.9	54	221.6
25-44	161	130.8	109	118.8	13	89.7	39	179.2
45-74	14	134.6	11	145.7	1	17	2	132
75	4	33.8	3	42	0	-	1	9
No ISS	206	266.3	10	90.4	1	123	195	276

*A Box and Whisker plot of ED Length of Stay by ISS is found on page 5.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
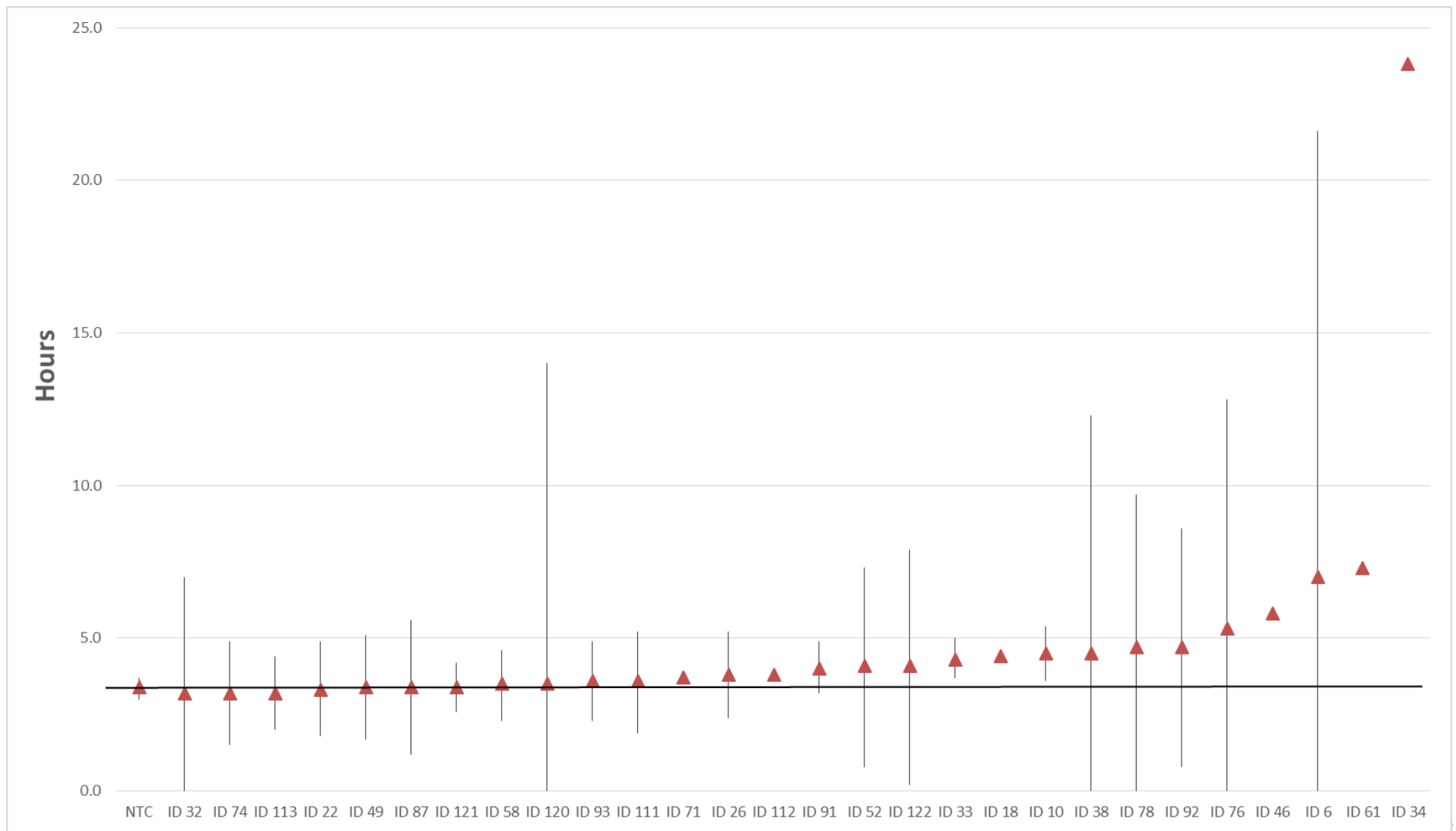**January 1, 2016—March 31, 2016**
8,077 Incidents

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ED Disposition (count) by ISS Category

	Floor Bed	ICU	Transferred	OR	Observation	NK/NR/ NA	Step- Down	Home w/o Services	Expired	Other	AMA	Home w/ Services	Total
1-8	1758	247	743	296	263	120	207	226	9	13	1	0	3883
9-15	1649	284	405	195	73	162	177	22	15	2	2	1	2987
16-24	114	183	64	65	12	12	52	0	9	0	0	0	511
25-44	32	144	29	61	0	10	15	0	14	1	0	0	306
45-74	0	7	1	6	0	1	0	0	3	0	0	0	18
75	1	9	0	0	0	0	0	0	5	0	0	0	15
NO ISS	187	6	94	3	15	35	10	5	1	1	0	0	357
Total	3741	880	1336	626	363	340	461	253	56	17	3	1	8077

*Bar graph of ED Disposition by ISS is found on page 22.

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2016—March 31, 2016

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General Report:

-The caterpillar plots with the anonymous ID's for all patients per hospital may be found on pages 30-35.

-The caterpillar plots with the anonymous ID's for transferred patients per hospital may be found on pages 36-42.

-The caterpillar plots with the anonymous ID's for critical transferred patients per hospital may be found on pages 43-48.

-Reference tables now accompany the graphs for demographic data on pages 25-28 and 49-51.